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AN INTERPRETATION OF THE PSYCHO-ANALYTIC METHOD IN PSYCHOTHERAPY WITH A REPORT OF A CASE SO TREATED

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THE psycho-analytic method has become known to the psychological and medical world chiefly through the writings of Breuer, Freud, Jung, and Riklin. According to these authorities many nervous and mental diseases arise from suppressed emotions experienced mainly in connection with the sexual life. For one reason or another the emotion does not run its complete course. There may result a "conversion" of the normal reaction into voluntary or spontaneous movements of defence. These latter may then survive as habit spasms. The effective tone of the emotion may become "transposed" and attach itself to particular ideas. Thus sexual disgust may lead to nausea and anorexia. The whole emotion may be so "completely suppressed" that there remains no trace of it in consciousness or in movements.

In all these instances in which the emotions fail to live themselves out normally, they are pressed down into the subconscious, and after the manner of parasites prey upon the health of the individual. It is quite possible for the patient to recall them in memory, and yet they are a determining factor in all his thinking.

The psycho-analytic method, as expounded by its originators, consists in overcoming this forgetfulness and in bringing up into consciousness the emotional ideas which have been suppressed.

The first means employed for securing these results was hypnosis. Hypnosis was supposed to tap the subconscious and to enable the cleft between the conscious and subconscious to be removed. When these emotional ideas were thus recalled to the upper consciousness, given complete verbal expression, and lived over as fully as possible, the cure was effected and the old experience lost its baneful influence.

At a later time it was discovered that hypnosis was not necessary, but that a state of relaxation and passivity was adequate, if while in such a state the patient gave full rein to the ideas which involuntarily surged up into consciousness and then gave full expression to them. In such treatments the physician seems occasionally to have kept his hand on the patient's forehead and to have charged him to make no attempt to keep disgusting and sexual ideas from arising. Suffice it to say that with such instructions disgusting and sexual ideas were forthcoming.

The latest manner of applying the method of psychoanalysis is that of free associations. A word is pronounced to the patient and he is asked to speak at once the first thing that comes to his mind. A record is kept of the time of the association and the quality of the association. By means of these free associations the experimenter is enabled to fathom the depths of the subconscious, because the subconscious complexes of emotional ideas have a very pronounced influence in determining how quickly ideas shall arise in consciousness and also which ideas shall arise.

When the physician has thus convinced himself of the nature of the emotional complex which has been suppressed he states it frankly to the subject and secures an open and free confession, and so the emotion is brought up where it may live itself out and disappear.

It seems to be a matter of indifference which means of applying the method is used, whether hypnosis, hypnoidization, or free association. The principle and the result are the same. They all enable the patient to overcome the gaps in memory, to resurrect the disturbing complexes, to unite them with the upper consciousness, and thus allow them to complete themselves normally and hence cease to be. In

every case the method is assumed to give great weight to the argument for the dissociated ideas, and in general for the more extreme theory of the subconscious. It is assumed as demonstrated that these dissociated ideas have an existence similar to that of the upper consciousness. They aspire, hate, dread, and show great ingenuity and finally are exorcised scientifically by the psycho-analytic method.

Those who hold this particular interpretation of the psycho-analytic method are successful in its application. The results in healing the afflicted patients are generally admitted as unquestionable. These authorities seem to assume that if their interpretation fits all their cases it has met the pragmatic test and must be assumed as correct. Such an inference is wholly unjustified. There is certainly another interpretation which will fit all the cases as well as this one, which assumes subconscious complexes.

The thesis here defended is that the psycho-analytic method is nothing more than an unusually skillful application of the method of suggestion, and that it offers no proof for the existence of subconscious complexes of suppressed emotional ideas.

The application of the theory of suggestion to the psycho-analytic method may be indicated by stating the course of treatment of an actual case and indicating the interpretation of each step in terms of suggestion.

Mrs. T. was afflicted with phobia. For years she had been afflicted, and for the last few years had never been without an attending nurse or physician. Her chief dread seemed to be that of being on a street car, in a strange place, and in general of being anywhere but in her own room at home or in a sanitarium. Physical treatment seemed to benefit her but little. She was subjected to a form of treatment involving the characteristics of the psycho-analytic method. She was hypnotized and told to call to mind one after another all the instances in which she had been frightened or overcome with dread. These experiences she was encouraged to depict as fully as possible and in every way an attempt was made to heighten the emotional aspect of the situation. Thus one after another her frights were recalled and expressed. This analysis was continued till the patient

seemed unable to recall any more. After a few helpful suggestions the patient was awakened. On the following day she was rehypnotized and the same narrations were called for. As they were recollected, new associations were suggested and an attitude of indifference towards the old experiences was sought. The third day the experiences were again repeated under hypnosis, but an attitude of complete indifference manifested itself in that the descriptions of the worst frights resulted in no change in the patient's pulse. After the treatment she showed pronounced improvement and the method of re-education was begun.

In explaining the result of this treatment it is not at all necessary to assume that these old emotional experiences had been existing subconsciously. It is entirely satisfactory to assume that in the last of her serious frights, i. e., fainting on the street alone, there became established an unfortunate association between being alone on the street and such bodily reactions as trembling, turning pale, etc. At later times whenever the idea of going out was presented to her she began to tremble, turn pale, and to be overcome with dread. By the hypnotic treatment this injurious association had been broken. As a matter of fact the patient could probably have recalled all these experiences in her waking condition and the only benefit of the hypnosis may have been, not to tap the subconscious, but to enable her to break up the old association and to make the new association effective without having the old association as an inhibiting factor.

The patient's improvement did not seem to be progressing satisfactorily after the first week of re-education. She seemed content with the present improved condition and was not enthusiastic for further progress. She was then put in a relaxed or hypnotic condition and subjected to a form of treatment, which could scarcely be explained as affecting subconscious complexes, but is explained most simply as the working of suggestion. She was reminded that she had not seen her four children for a year, that the two youngest ones had entirely forgotten her, that none of them would long continue to feel any need of her or any affection for her; and that her husband's affections would not be able to stand the strain of expense of money and of her absence from his

home. She was then assured that she was on the very point of perfect recovery, that she was to return to her home and become the true mother of her children and the cherished wife of her husband. All this was presented in such a way that the patient was deeply affected. Then at the critical moment the patient was assured that her recovery was complete, that she was perfectly well, and that she was to enter into a new life and happiness. She was thoroughly convinced of the truthfulness of the statement and was happy in it. She affirmed that she was perfectly cured. This suggestion was kept uppermost in her mind. She was instructed to inform her nurse and all her friends that she was well again. This she did immediately and the result was a pronounced improvement. Perfect health seemed approximated but not fully realized, and, after two weeks, further advance by education did not seem to follow, even though the patient was pronounced ready for a return to her home — though she would require careful consideration for some time until she had fully established her new habits.

As a final stage in the treatment it was thought desirable to secure data from the history of the patient which had not been brought out even by hypnosis. No attempt was made to apply the method of association, but the assumption was made that there had been at least something in the sexual history of the individual, the narration or confession of which would lead to intense emotions and to the condition for the most perfect working of suggestion. With this in view the patient was told that she had been guilty of sexual irregularities, that she had had sexual experiences which had undermined her health, and that her perfect cure was delayed by the fact that they had never been confessed. She seemed to believe this implicitly, her confession disclosed all the factors which even Freud would expect to find in a case of extreme phobia (distressing sexual experiences of youth, sexual perversion, sexual excess, as well as periods of sexual anasthesia).

As will be assumed by those acquainted with such cases, this confession was made with weeping and anguish of soul. At the conclusion of the confession she fell back into a condition of relief which was the condition needed for the most

perfect possible working of suggestion. She believed that her perfect cure would be brought by the confession, otherwise she would not have made it; furthermore she had the utmost confidence in her father confessor, otherwise she would not have confessed to him; and in addition to this she believed that he above all other men had the power to cure her, otherwise she would have gone to some other doctor.

It hardly seems necessary to resort to the subconscious to explain the calling up of the original distressing experiences. The recall was made in the waking condition and in response to the statement that such a recall and confession was necessary for perfect recovery. As a matter of fact permanent improvement followed this last confession as had been the case in each of the two previous forms of treatment.

As an antidote to the rehashing of all this sexual filth the patient was hypnotized and total amnesia was suggested for all the ideas which had had a casual part in the history of the disease. The desired amnesia may have followed, not because the ideas had been exorcised, but because the patient was thrown into a healthful attitude, and that too, by suggestion.

The subconscious, as is well known, is not open for introspection, but is assumed as an explanatory hypothesis. The hypothesis has no justification unless it explains the facts better than any other theory. The users of the psychoanalytic method have denied flatly that suggestion was a possible explanation of their results. Because of this assumption they have, in the opinion of the writer, been hampered in their treatment and have taken longer time for their cures than otherwise would have been necessary. The patient described above was afflicted to a degree greater than that found in most of the patients described in the literature of Freud or his followers, and yet by assuming the theory of suggestion instead of subconscious complexes, the treatment was varied and apparently rendered more successful than it could have been by the theory which is here being opposed.

It is hardly necessary to add that the subconscious theory, as held by the authors referred to above, revives an

atomistic theory of psychology; it makes ideas into metaphysical entities possessing powers of acting in consciousness as well as of sinking down into the subconscious and remaining there as ideas indefinitely. However, the purpose of the present paper is not to call attention to the theoretical difficulties which such a theory of the subconscious involves, but merely to call attention to the fact that the successful application of the psycho-analytic method in psychotherepy does not offer any pragmatic support to the theory of the subconscious assumed in psychotherapy, whether applied in Emmanual Church, Boston, or in the clinics of Vienna.

A STUDY OF EMOTIONAL EXPRESSION IN DEMENTIA PRÆCOX*

BY J. W. DE BRUYN

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IN view of the large place that has been given to the pathological states in the discussions of the James-Lange theory of the emotions, it seemed to us that it might be worth while to study the more obscure reactions of the insane who gave little or no sign of emotional response. Patients suffering from dementia praecox, for the most part of the catatonic type, were chosen for investigation. As will be seen from the case descriptions given below they were all in some degree deficient in emotional expression and probably in some degree lacking in the appreciation of emotional states.

The responses chosen for study were the respiratory and vaso-motor, although the records also gave opportunity of studying the gross changes in the pulse. The apparatus used was the finger plethysmograph with piston recorder and the Sumner pneumograph with Marey tambour.

The stimuli used were of sufficient variety to eliminate any special effects due to the sense worked with. The method of applying the stimulus is given where it is not sufficiently evident from the mention of the stimulus.

The experiments were made upon dementia praecox patients at the Michigan State Hospital, in Ann Arbor, and at the Michigan State Asylum, located at Kalamazoo. We note here extracts from the histories of the patients experimented upon.

Gr: Patient is able to answer questions, but often is noticed whispering to himself and assuming peculiar attitudes. Orientated as to time and place. No tremor. Has hallucinations of hearing, smell, taste, and sight. Memory is fair. Has delusions concerning poisoning and hypnotism. No echophrasia, echolalia, or stereotypedness.

*Communicated by Prof. W. B. Pillsbury.

When I came to work with the patient I found he had become mute. He also seemed to recognize me and to understand what I had to say to him.

Ro: When admitted, his pulse was very rapid. Memory poor. Did not converse. Depressed, untidy, and indifferent. Very resistant. Later showed more mental activity, whistling popular songs which had become popular since he entered the institution. Later, again, became indifferent to his surroundings, showed mannerisms and often smiled without occasion, and whispered to himself. I found him to be very agreeable, recognizing me whenever I entered his ward. He gave an excellent pulse and was rarely if at all constricted.

Ho: When admitted, seemed impulsive and maniacal, and usually would not answer questions. Would stop and gaze at a spot on the wall. Later, showed mannerisms, disturbed orientation, auditory hallucinations, and stereotyped manner of answering questions. I found him to be very silly, laughing so that results were often spoiled.

McK: A case of manic-depressive insanity or dementia praecox, hebephrenic type. Seems to have had periods of depression alternating with periods of elation. Judgment good but somewhat overshadowed by depressed ideas. Has depressed hallucinations of vision and hearing. When I came to work with him I found that he would not talk to me and obeyed orders almost resistantly.

Ma: At entrance was irritable and would not do what was asked of him. Remained in whatever position he was placed. Hallucinations of sight and hearing. Emotional state variable, depressed, apprehensive, or indifferent. Sometimes catatonic, at other times resistant to being placed into position. Impulsive outbreaks attacking those about him. Hears voices from above and does little or nothing. Not entirely orientated as to time. His grasp of immediate and remote past is poor. Rambles in his conversation.

Le: Dementia praecox of catatonic type. Negativism physically and mentally. When asked to do anything the first impulse is to do it, then to do the contrary. Has some stereotyped movements; at regular intervals jumps up from chair, stands a few minutes and sits down.

Mi: At time of admission could speak. Said he heard voices. Later became mute and sat all day with hands folded and seemed to pay no attention to surroundings. Occasionally smiled to himself. I found this man timid and fearful. Badly constricted except once or twice.

Ha: When admitted had a slow, unsteady gait. Hallucinations of hearing; many of his acts were in response to them. Mildly elated. Indifferent toward self and environment. Some cataleptic tendencies. Spends most of his time playing an imaginary piano and singing a tune over and over. Is a case of well-advanced dementia praecox. No interest in things about. Sing-song utterances difficult to understand. Defective orientation. I found him to be a typical case of stereotypedness. While I was working with him I never found him attempting to play the piano, but he was actively hallucinated, muttering to himself constantly. He was the most negative as well as the best case with which I had to deal.

Ch: Megalomaniac. Occasional hallucinations.

Co: Orientated for time and place. This man is fairly normal. I was able to have him figure problems.

Sp: Quite normal, but is affected by his inability to control his laughter.

For the sake of convenience in comparison we give the results in two summaries, first with reference to the effects of stimuli upon the different patients and then with reference to the different stimuli that were used.

Ro: The volume was decreased once (vaso-constriction) and once the response was doubtful when kerosene was dropped upon the skin of the neck. Deep pin pricks gave once a delayed, once an immediate fall in volume. A shrill whistle near the ear gave a negative result once, one irregular change, and once an immediate, once a delayed constriction. A tin pan dropped upon the floor once gave an irregularity, once no response, and once a fall in volume. Of the gustatory stimuli applied salt gave irregularity, cinnamon no effect except once a fall in volume, chocolate a fall in volume. Of the odors camphor gave a doubtful result, ammonia in two instances a fall. The changes in respiration were rather more definite. The two tactual stimuli gave shallower

respiration in every (four) instance. The whistle checked respiration three times out of four, while the tin pan once gave a fall, once a rise, and once no change. Salt gave deepened respiration once, cinnamon once no change, and once a deepening, chocolate a doubtful effect. Camphor produced irregular breathing, while ammonia in each case diminished the amplitude of the respiratory movement, perfume no effect. In summary, then, we find that in eighteen experiments there was fall in volume ten times, no change four times, and a doubtful result or mere irregularity four times. Respiration became more shallow ten times, deeper three times, irregular twice, and was unchanged four times.

Mi: Perfume twice gave increased volume, twice negative results. Camphor, sugar, and ammonia gave no results. A pin prick (severe) failed to produce a fall in volume but once out of five times; kerosene twice failed of effect, and once gave a fall followed by a rise, pinching a rise. The whistle gave a fall once, a rise once, and three times no result; the tin pan produced constriction each time it was used. Respiration was diminished once out of four times by perfume; not at all by camphor, ammonia, or sugar; in each of five trials by pin pricks; by pinching each time; by kerosene once out of three times, by the whistle once out of five times, and the tin pan once out of two trials. There was deepened respiration once by the whistle and once after an interval of diminution by the kerosene.

Ho: Kerosene and the pinch gave fall of volume, perfume and the whistle a fall of volume, while all of the stimuli mentioned gave shallower respiration.

Me: Camphor, ammonia, the whistle, and the tin pan gave no result, while the pin prick gave constriction and diminished respiration.

Gr: Perfume gave three cases of constriction in volume, one doubtful case; ammonia three: one restriction, one negative, and one uncertain; the whistle, one dilation, one dilation followed by constriction, one negative, and one doubtful case; a pan dropped upon the floor gave no response three times and once a rise followed by a fall; a pin

prick induced two rises in volume followed by a fall; cinnamon one constriction and one negative result; sugar a fall in two cases, camphor one rise and one uncertain case; kerosene one fall and one uncertain result; chocolate an irregularity. In respiration perfume gave one case each of diminution, of diminution followed by an increase, an uncertain result, and a negative one; ammonia induced two diminutions, one irregular change, one was doubtful, and once there was no change; the whistle induced a diminution twice, a diminution followed by a rise once, and one negative case; the pan no change four times; a pin prick once diminished, once diminished then increased the breathing; sugar and camphor each gave one negative result and one diminution. In all, out of twenty-six trials there was constriction nine times, dilation twice; dilation followed by constriction four times, constriction followed by dilation once, five uncertain and five negative cases.

Approximately the same stimuli were used for the other cases, so that for the remaining patients we may spare the reader the details and give the bare general summary.

Ha: Thirteen tests. Six cases of constriction in volume, three of dilation followed by constriction, one negative, and one doubtful case. In respiration six diminutions, one diminution followed by increase, one increase followed by decrease, two negative and one doubtful case.

Sp: (nearly normal). Twenty tests. In volume there were four cases of fall, four of rise, two of rise followed by a fall, four negative and two doubtful, in respiration six checkings, three instances of no effect and five of doubtful result.

Co.: Nine tests. Of these two gave constriction, one constriction following dilation, five no result, and one a doubtful response. In respiration there were six negative cases, one decrease and one irregularity.

Ch.: Six tests. Only one constriction of capillaries three negative and one doubtful result. In respiration four were negative and one doubtful.

McK: Five tests, three cases of constriction, two doubtful, and two cases of diminished respiration, one negative, and one uncertain response.

Ma: Six tests. Two cases of restriction, three negative and one doubtful response. Respiration was diminished in five instances, the effect was in doubt twice, and once there was no response.

Of the eleven patients experimented upon only two would be regarded as at all obtuse in their responses, and these, Co. and Ch., were among the patients more slightly affected. It is probable that the small percentage of positive results with them was due to the small intensity of the stimuli employed or to other extraneous circumstances.

In final summary, we find that olfactory stimuli gave the following results. First as to volume: Seventeen experiments resulted in no change, twelve in a fall, nine in uncertainty, one in irregularity, five in a rise, and two a rise followed by a fall during stimulation. Second as to respiration: Twelve times there was no change, twelve times diminution, five times uncertainty, six times irregularity, one rise and two rises followed by falls during stimulation. Auditory stimuli gave the following changes in volume: Sixteen times there was no change, eight times a fall, six times uncertainty, twice a rise, three times a rise followed by a fall during stimulation, and once a fall followed by a rise during stimulation. As regards respiration, there was no change nineteen times, five falls, one uncertain response, four irregularities, one rise, and one rise followed by a fall during stimulation. The results regarding gustatory stimuli were these: As to volume, six times no change, eight falls, two uncertain, one irregular, and one rise followed by a fall during stimulation. As regards respiration, there was no change, six times, three falls, three questionable, one irregular, three rises, and two falls followed by rises during stimulation. Tactual stimuli caused the following records. As to volume, five times no change, nine times a fall, once uncertainty, eight rises, and one fall followed by a rise during stimulation. As to respiration, there was no change twice, eleven falls, two uncertain, one rise followed by a fall during stimulation, and two shallower breathings.

These results show that the character of the stimulus makes little difference, at least in dementia praecox cases, with the likelihood of stimulation. If, however, I were to

be compelled to choose between stimuli with which to obtain most noticeable results, I would choose such tactual stimuli as pinching or pin-pricking, for these seem to effect most easily the instinctive processes.

The results themselves are unambiguous. In one hundred and seventy-seven experiments made on patients who showed practically no sign of emotion as judged by the ordinary tests there were one hundred and twenty-one in which the circulation of respiration showed some response. It would seem that the unresponsiveness of dementia praecox extends to the voluntary muscles alone and is not at all marked so far as the more involuntary activities are concerned. The interpretation of the results is, however, by no means so certain. Could one be sure that the patients were without emotion as well as defective in emotional expression it would seem that we could have emotional expression in one important particular without an accompanying emotion. The evidence for or against the presence of the emotion is not at all definite. The introspection of a patient at the stage of mental dissolution presented by most of our patients is very unreliable. Indirect evidence might be drawn from the fact that the patients' hallucinations in an actively hallucinated condition often went on unchanged in character and degree by the stimulus. This would seem fairly conclusive evidence that the stimulus aroused no emotion, but would not serve to differentiate the case from sleep where there are vital responses without waking, or from states of dissociation, like hysteria, where consciousness attaches to selected operations only, in spite of definite physiological response to others.

In the necessary ignorance of the mental content of the emotions, our results would only be sufficient to show that a distinction must be made between the voluntary and involuntary accompaniment of an emotion. Voluntary expression may be lacking, involuntary be present. Probably, too, the involuntary reactions may take place without the presence of an emotion as a conscious state.

Some evidence might also be drawn from the results as evidence that the passivity of catatonia is the result of inhibition rather than any defect in capacity. Were some defect in the mechanism present one would expect that it would affect

the involuntary and the voluntary alike. Were it the result of active inhibition one would expect what we find, that the voluntary processes alone would be checked while the others were beyond control.

We desire to express our sense of obligation to Dr. Barrett for suggesting the problem and putting at our disposal the resources of the Psychopathic Hospital, to Dr. Shepard for assistance in setting up the apparatus, and in its manipulation during the first experiments; to Dr. Ince, and the other officials of the State Hospital at Kalamazoo for the opportunity to use their patients, and for access to case histories and diagnoses.

HYPNOIDAL STATES — A CORRECTION

In the last number of the JOURNAL in a footnote to my article on the "Unconscious"(p. 337), after giving Dr. Boris Sidis's definition of the state which he terms "hypnoidal," by a clerical error I was made to say: "This seems to be the same state which Brewer and Freud originally termed hypnoidal." The last word "hypnoidal" should have read *hypnoid*. As it stands it does injustice to Dr. Sidis, who coined the term hypnoidal and applied it to what he regards as a "subwaking state." Brewer and Freud have used the term hypnoid, as others may have done, to define certain dissociated conditions and particularly certain hysterical states. Sidis's state is certainly not an hysterical state. What I had in mind was whether or not it can be identified with that condition which is generally regarded as light hypnosis, and in which a person equally well can be said to be "in full possession of his powers and still is more closely in touch with the dissociated experiences than he is otherwise in the full waking state." Whatever the answer may be Dr. Sidis was the first to apply the term hypnoidal to a state which he has carefully and extensively studied.

MORTON PRINCE

MENTAL CAUSES IN BODILY DISEASE

The Most Frequent Cause of the Origin of "Nervous Indigestion"

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MUCH confusion exists about the influence of the nervous system upon digestion, even well-trained physiologists sometimes failing to distinguish between psychic and neurotic, between the influence of the mind and that of the peripheral nervous system.

Of the influence of the latter a sufficiently marked example occurs in the gastric crisis of tabes dorsalis. It is now pretty well established that locomotor ataxia is due to the progressive inflammation of the root nerves of the spinal cord through their being involved by the specific meningitis (1) which is shown clinically by the increased number of lymphocites in the cerebro-spinal fluid ascertained by lumbar puncture. If the inflammation of the dorsal meninges implicates one or more of the spinal roots of the sixth, seventh, eighth, and ninth spinal segments, the irritation caused, traveling centrally, will have the same effect as if it came from the nerve terminals in the gastric mucous membrane which is supplied by the foregoing roots. This, then, is a gastric lower-neuron irritation of known pathology. We do not know others definitely; though there exist cases in which a general irritation of the autonomic nervous system seems to occur, and to give rise to vomiting, as in pregnancy and some cases of Addison's disease.

Another reflex peripheral source of emesis occurs when the vestibular nerve is severely stimulated, as in seasickness, Menières disease, or by irritation of the eighth nerve from inflammation at the base of the brain. The mechanism which determines the vomiting by eighth-nerve irritation consists of an overflow of neural energy (2) from vestibular nucleus in the pons-medulla to the closely contiguous pneumogastric nucleus in the bulb. All these gastric dis-

turbances may legitimately be called neuroses in the sense of an affection of lower neurones. These conditions are on the whole uncommon.

Of much greater practical importance, because more abundant, are the so-called gastric neuroses where digestion is badly performed, unpleasant, or even painful, although no primary disease exists in the mucous membrane, musculature or nerve supply of the stomach, but where, in spite of this, there is functional incapacity. The proof of this by chemical tests is apt to blurr the physician's mind as to the true cause; for it is difficult to conceive that the mind is capable of inhibiting gastric flow or movement, which are neither within the direct control of the will.

Such, however, is the case as the researches of Pawlow (3) have proved, even upon dogs. For example, he showed that a flow of gastric juice, even without the giving of food, was excited by the ringing of a bell in presence of a dog which had been accustomed to receive its meals immediately after the ringing. He called this a "conditioned reflex," in contrast with the organic or "unconditioned" reflexes inherent in the lower neurones. Inhibition may be engendered in this conditioned way, as Pawlow showed by the arrest of gastric secretion when a dog was shown a whip of which he knew the use. Here then are examples of secretions inhibitable and excitable by extraneous means, even though they are beyond the direct power of the will.

Most people know that a powerful depressing emotion will dry up the mouth, create constipation or the reverse, prevent or compel micturition, even cause temporary arrest or accelleration of the heart, etc. These phenomena immediately strike the most careless observer. But slower grief or anxiety as well is not only capable of preventing movement by volition, but involuntarily lowers tone by decreasing the respiration. Who is not familiar with the droop of the mouth, the slacking of the face muscles, the stoop of the back, of grief? But this is not all; for it, too, may check secretions and hinder the autonomic rhythm of the viscera. Continuous grief, worry, or painful mental preoccupation or even long-continued physical fatigue may arrest the secretions by diminution of oxidation and depression of physical tone. Fear spells inhibition.

Every one at one time or another has indigestion; many consult a doctor for this; and most patients are suggestible to a certain extent. The suggestion that the stomach is ailing often remains long after it will bear abundant food. The patient's belief that his stomach is weak is fortified by the fact that he is taking a remedy for it; a real weakness may indeed be created by an irritating remedy. Either of these states results in anxiety at meals; fear of not digesting prevents the relish of food, which is the main determinant of early gastric flow, so that each morsel provokes a suppression rather than an excitation of flow; and of course the meal does not digest properly. A word regarding this. It should be evident that as the patient's failure to digest is caused in reality by the idea that he cannot do so, our treatment should be directed to the removal of the causal idea. Gastric stimulants, or adjuvants, or vaso-secretory measures are mere tinkering with the effects, and are hence irrational when the cause can be removed. The proper treatment is the eradication of the fixed idea by proving to the patient its erroneous nature. This, as a rule, cannot be done in one interview; for the patient is sceptical on account of the frequent failures of the treatments he has usually undergone at the hands of physicians who have not understood the considerations now being presented. Many cases, indeed, require prolonged isolation, in order that their attention may be concentrated upon the theorem of their physician that their whole disease comes from the imagination. This they cannot believe by mere argument: the functional incapacity of the stomach seems too real. This is, of course, true: for by disuse the gastric digestive power has become much diminished: besides this, the condition is augmented by the general enfeeblement of the whole system from starvation. To compensate for this and to confine the energy of the organism to the anabolism required, complete rest in bed is necessary; and it must be accompanied by abstraction of the patient from as many external stimuli as possible.

This abstraction from other solicitations materially assists the re-education needed to remove his false belief

that his stomach is diseased: for no other impressions than those chosen by the physician are allowed to gain access to him. Friends, letters, books, all the old associations are entirely removed: until from the arguments of the physician and his rapid weekly gain in weight, he is compelled to confess that he was deluded, and that the trouble was in his stomach only in so far as " he kept it in his head." (4).

I need not cite cases, which would simply serve to emphasize that we cure by treating the false idea of the mind, and not by influencing the neurones directly (5).

The disease is not a neurosis in the true sense, but a psychosis, the secondary effects of which will disappear when it is cured by psychotherapy. The false idea, in the cases curable in this way, has either arisen by auto-suggestion fortified by the hetero-suggestions of medical men not conversant with the dangers of perpetuating by unwary remarks an exaggerated solicitude which they might have easily removed (6), or is more often the direct production of medical suggestion made during real functional deficit for which the doctor has been consulted (7). Every one has indigestion at one time or another; many consult doctors for this: and most patients are suggestible to a certain extent. Hence, until the profession as a whole understands the mechanism of the false gastropathies, we shall continue to see cases of so-called gastric neuroses, and they will continue to find their salvation (after vain medical consultation) at the hands of such indiscriminate creators of optimists as the Christian Scientists, or the self-styled psychotherapeutist of ecclesiastical persuasion, and *hoc genus omne.*

The genesis of the fixed idea by suggestion and its removability by suggestion-persuasion places these cases within the category of hysteria, as defined by Babinski (8) and developed elsewhere by the writer (9). The anorexia shown by these patients must be differentiated from that of Lesègue's mental anorexia (10), in which the voluntary starvation is due to loss of the feeling of hunger. This disease is a true coanesthopathy and possibly is one of the protean manifestations of dementia praecox.

Psychasthenic patients also may voluntarily starve themselves; this, however, they do on account of an obsession of shame-of-body (11), of the act of eating, of becoming stout, and so on. In them there is no fixed idea that the stomach is diseased: and besides, they present numerous stigmata of the psychasthenic diathesis, such as the scrupulosity, the searching for perfection even in trifles, the feeling of incompleteness, the morbid fears, the tics and other forced movements, and indeed the uncertainty and doubt and hesitancy in action, so different from the uncritical facility, precipitancy, and thoroughness characterizing the impulsions of the true hysteric.

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THE UNCONSCIOUS*

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CHAPTER IV

The Influence of the Unconscious on the Psycho-Physiological Organism

WHEN a dormant complex is awakened and becomes conscious with its emotional tones, whether pleasurable or painful, it may affect in many ways the personal experiences of the moment. Within the last few years a number of important and systematic investigations on the functioning of unconscious complexes have been carried on. It has been shown that the *awakening* of dormant complexes of a certain kind brings about certain physical and psychological effects which are quite subtle and can only be detected by special methods of research. The *physical* effects are the generation of an electrical current in the body, changes in the volume of the blood vessels, in the respirations, heart-beats, secretions, etc. The *psychological* effects are inhibitions of thought. Besides these, certain clincal investigations carried on by the Zurich school have brought out, as seems to be the case, that in the symptomatology of one disease — dementia præcox — certain analogous phenomena are to be observed. That is to say that many of the symptoms of this disease — delusions, hallucinations, etc.— are the expression of the functioning of dormant complexes which represent experiences in the past life of the individual. The awakening of these conserved complexes under the particular conditions of the disease process results in the delusions, hallucinations, etc. The dormant complexes are, therefore, ideogenetic for many of the symptoms.

These clinical observations are the outgrowth of the well-known Freud theories that disturbances of the processes

*Continued from page 353.

of thought in daily life, such as the forgetting of names, the substitution of wrong words, the determination of the content of dreams, etc., are not due to chance, but in large part to the influence of suppressed and forgotten unconscious complexes. The same principle is believed to be effective in determining the symptoms in disease. The effect of the revival in hysteria of dormant complexes, whether as co-conscious or conscious memories, in the production of crises and other stigmata, has long been known. I would point out, however, in passing, that the fundamental basis of Freud's theories is the functioning of unconscious complexes *without* their being awakened in consciousness. This difference is one of great importance. The evidence for the relation between the psychical effects and their supposed unconscious causes, as worked out in individual cases by the author of "Psychopathologie des Alltagslebens," is often fantastical and curious rather than scientific, and therefore far from convincing. The use of these theories by the Zurich investigators too often partakes of these characteristics, which mar their otherwise brilliant work.

These clinical investigations we will pass over for the present and take up the psycho-physical effects in normal persons observed as the result of the stimulation of dormant complexes.

THE PSYCHO-GALVANIC REFLEX

Amongst the physical effects the psycho-galvanic reaction is one of the most interesting. Féré, whose early work has been largely overlooked through the interest which has been centered in the more recent and exhaustive work of German students, was the first to show that variations occurred in an electrical current passed through the body under the influence of sensory stimulation and of the emotions* and to measure the deviations of the current with the galvanometer. In his volume, "La Pathologie des Émotions," 1892, he thus sums up his earlier and later observations: " I then produce various sensory stimulations — visual (colored glasses), auditory (tuning-fork), gustatory, olfactory, etc. Whereupon there results a sudden deviation

*Note sur les modifications de la résistance électrique sous l'influence des excitations sensorielles et des emotions, *C. R. Soc. de biologie*, 1888, p. 217.

of the needle of the galvanometer which, for the strongest stimulations, may travel fifteen divisions (milliamperes). The same deviation may also be produced under the influence of sthenic emotions, that is to say it is produced under all the conditions where I have previously noticed an augmentation of the size of the limbs, made evident through the plethismograph. Absence of stimulation, on the contrary, increases the resistance; in one subject the deviation was reduced by simply closing the eyes.

" Since these facts were first described at the Biological Society, I have been enabled to make more exact observations by using the process recommended by A. Vigouroux (A. Vigouroux: De la résistance électrique chez les mélancoliques, th. 1890, p. 17), and I have ascertained that under the influence of painful emotions or tonic emotions, the electrical resistance may, in hystericals, instantaneously vary from 4,000 to 60,000 ohms."

It will be noticed that Féré attributed the variations of the current to variations of resistance of the body induced by sensations and emotions.

Following Féré a number of experimenters have investigated the variations of the electric current passed through the body from a galvanic cell under different psychological conditions. The most important of these researches have been those of Tarchanoff (1890), Müller (1905), Veraguth (1906) and, still more recently, Jung and his co-workers, Binswanger, Bleuler, Ricksher of Danvers, and Peterson of New York, in the Psychiatric Clinic at Zurich. The general result arrived at has been to confirm the main fact recorded by Féré, that under the influence of sensory stimuli and emotion the current is increased. They have also explained this increase by a diminished resistance of the body, but the physiological conditions which determine this diminution they have ascribed to conditions somewhat different from those supposed to be the cause by the discoverer. Féré, and other French investigators, attributed the diminished resistance to increase of the blood supply to the skin, this increase being caused by the emotion. It has been shown by the Zurich investigators that the blood supply can be eliminated as a factor, and believing that the increase of

current is due to diminished resistance, they have concluded that the most probable explanation of this latter is an increase in the secretion of the sweat glands. According to this theory the awakening of an emotional dormant complex into consciousness induces an increase of secretion which diminishes the electrical resistance of the skin and thereby increases the galvanic current. (These reactions and the mode by which they are ordinarily elicited have been described in previous articles in this JOURNAL.*)

Quite recently Sidis and Kalmus have reinvestigated the mechanism of the reactions in a painstaking and elaborate research.† They have found that an extraneous current from a battery is not necessary for the production of the phenomenon, but that when no battery is used it can be elicited as well. The body is placed simply in circuit with a very sensitive galvanometer and then it is found that when an emotion is awakened in the subject a similar deflection of the galvanometer occurs. This reaction is elicited, according to these investigators, under the same conditions of stimulation as when a current is simultaneously passed through the body. The conclusion they reach is that the deflection of the galvanometer is caused by a current generated in the body itself under the influence of an emotion and other correlated conditions.‡ Sidis and Kalmus conclude that the oscillations of the galvanometer are due to this current§ and not to a diminution of the resistance of the body. While accepting these results it would seem, nevertheless, that there may be two entirely distinct reac-

*C. G. Jung: February, 1907. Ricksher and Jung: December, 1907. Prince and Peterson: June, 1908.

†Published in the Psychological Review, November, 1908, and January, 1909. The main results have been communicated personally and demonstrated to the writer by Dr. Sidis.

‡We expect to give an abstract of the experiments in a forthcoming number of this JOURNAL.

§It should be said that these experimenters have found that, besides the emotional current, there is another current produced by contact of the hands with the electrodes and which they attribute to polarization of the latter. The effect of this current is eliminated as a factor in their experiments. I have been able to confirm the existence of such a current on contact with the electrodes, but have made no experiments on the physics of the phenomenon.

tions brought about by an emotional tone: One, psycho-physical, the psycho-galvanic reaction proper, caused by the generation of the emotional current; the other, psycho-physiological, consisting of peripheral, vaso-motor, and secretory changes. These, like respiratory and other visceral changes, are known to occur and may possibly cause a reduction of the resistance of the body. These must play, however, an insignificant or no part in the psycho-galvanic reaction. The effect of the peripheral changes needs further investigation. It is enough for the present to limit ourselves to the fact that vaso-motor and secretory changes do occur following emotion, as is clinically observed in numerous cases of the psycho-neuroses, etc.

These vaso-motor and secretory changes need not surprise us, as indeed they have a biological meaning. As Sherrington* has pointed out, "there is a strong bond between emotion and muscular action. Emotion 'moves' us, hence the word itself. If developed in intensity, it impels toward vigorous movement. Every vigorous movement of the body . . . involves also the less noticeable co-operation of the viscera, especially of the circulatory and respiratory [and, I would add, the secretory glands of the skin]. The extra demand made upon the muscles that move the frame involves a heightened action of the nutrient organs which supply to the muscles the material for their energy;" and also involves a heightened action of the sweat glands to maintain the thermic equilibrium. "We should expect," Sherrington remarks, "visceral action to occur along with the muscular expression of emotion," and we should expect, it may be added, that through this mechanism emotion should become integrated with vaso-motor, secretory, and other visceral functions.

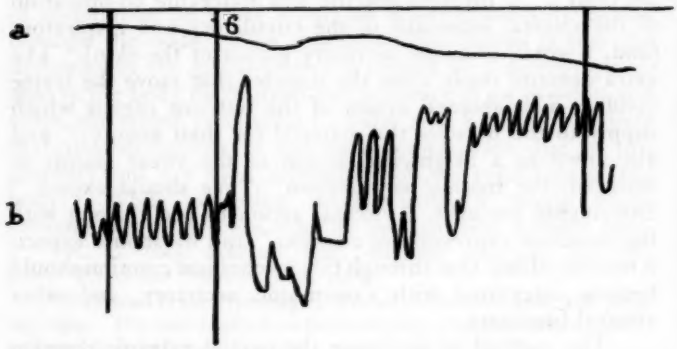
The method of obtaining the psycho-galvanic reaction may be varied in many ways, the underlying principle being the same, namely the arousing of an emotion of some kind. This may be simply through imagined ideas, or by expectant attention, sensory stimulation, suggested thoughts, verbal stimuli, etc. According to Peterson and Jung,† "excluding

* The Integrative Action of the Nervous System, p. 266.

† Psycho-Physical Investigations with the Galvanometer and Pneumograph in Normal and Insane Individuals, *Brain*, Vol. XXX, July, 1907.

the effect of attention, we find that every stimulus accompanied by an emotion causes a rise in the electric curve, and directly in proportion to the liveliness and actuality of the emotion aroused. The galvanometer is therefore a measurer of the amount of emotional tone, and becomes a new instrument of precision in psychological research."

The significance of the phenomenon lies, on the one hand, in the physical proof that it offers of the influence of mental states, whether conscious, co-conscious, or possibly dormant, on the physiological processes of the body, and on the other — the more important — in the means it furnishes for determining the existence of dormant mental complexes which, when stimulated, disturb the personal consciousness but which otherwise would be unsuspected. It has also been shown that these same mental processes induce other physiological disturbances, among which one of the most conspicuous is the rate and depth of respiration. Such a disturbance of respiration is shown in the following tracing.



J., acute katatonic stupor. b is a wave selected from the series in which 6 is sudden call by name. The galvanometer curve (a) is slight, but the change in the pneumograph curve is notable. (Peterson and Jung.)

Now when the psycho-physiological galvanic reflex is obtained from dormant complexes, the memorses pertaining to the latter usually, at the moment of excitation, arise in consciousness, so that the subject remembers the experience

which, as a memory, gives rise to the emotion. But, as Dr. Peterson and I have shown when detailing the experiments with the case of dissociated personality, B. C. A.*, under certain conditions the emotional complex that causes the reaction does not arise in the consciousness of the personal self, but remains *co-conscious*. The personal self is unaware of it. It is believed by Jung and Binswanger that some of the reactions obtained by them justify the interpretation that a dormant complex, while continuing a pure physiological process, without becoming either conscious or co-conscious, may give rise to this galvanic reaction. They obtained rises in the galvanic curve which could not be explained by any conscious memories of the subject. By the method of psychoanalysis, however, they were able to resurrect memories of experiences which satisfactorily explained them. The subjects had forgotten these experiences. The experimenters therefore connected the galvanic reactions with the presence of these complexes, conserved in the unconscious without reproduction. In other words, it is inferred that an unconscious complex, when stimulated by a word (idea) belonging to it as one of its elements, and *without being reproduced in consciousness as memory*, can function so as to reproduce its feeling tone alone and thereby excite the secretory functions of the skin. (The possibility of co-conscious complexes does not seem to have occurred to them.) They therefore believed that the behavior of these dormant complexes corroborated the theory of Freud regarding the behavior of "unconscious" complexes in hysterical and normal life.

The theory has been made use of, too, by Jung, to explain certain word-association reactions, to be presently referred to, and some of the symptoms of dementia præcox. If the theory stands the test of time, it is destined to play an important part in revealing the mechanism of many psychoses. To this I shall return later, though as yet the evidence for the theory is fundamentally inadequate.

As to the galvanic phenomenon, when apparently coming from an *un*conscious complex, it is obvious that the observations are open to another interpretation — such as

*Journal of Abnormal Psychology, June-July, 1908.

the splitting of the complexes and the attachment of the emotion (by substitution) to some simple element or associated idea, as, it is certain, sometimes does occur. An analysis of the phenomenon shows that all that is actually observed is a galvanic reaction in association with a specific word-idea, which word-idea has an inferred feeling tone which occasions the reaction. Without questioning the validity of the latter inference, the resurrection by psychoanalysis of a previously forgotten memory in which the word-idea plays a part, justifies an inference as to the *origin* of the feeling tone, the historical association, but not that the conserved complex, while still unconscious, functions and causes the galvanic phenomenon. In other words, the unveiling of a forgotten experience throws light upon the *origin* of a given association, but not upon the mechanism of the present reaction. That a word, or any other elementary sensory stimulus, is capable of acquiring by association those psychical elements which induce physiological secretion, is proved by the experiments of Pawlow (already quoted) on the secretion of saliva and gastric juice. We see the same thing in every-day conscious life. As an instance of this may be cited the case of cat-phobia, in which galvanic reactions were obtained by Dr. Peterson and myself.* In this case, not only the sight of a cat but the mere mention of the word caused an intensely lively emotion and galvanic reaction. The history of this abnormal association had passed out of all conscious recollection even in hypnosis, but it was obtained by means of automatic writing and traced to a terrifying childhood experience with a cat. The episode had been forgotten, but the animal had continued to be an object of aversion. The same sort of aversion one meets with frequently in every-day life in connection with various objects, persons, places, natural phenomena (thunderstorms), etc. It would be far fetched to assume the functioning of an unconscious complex in such cases, rather than a simple association, the origin of which is forgotten.

However, without assuming the functioning of an unconscious complex, the phenomenon has great significance

*The Journal of Abnormal Psychology, June-July, 1908.

for abnormal psychologists. If a dormant idea, after being awakened and becoming conscious or co-conscious, can induce a physiological modification of the secretion of the skin, of the heart's action, of the respiratory functions, as shown by the pneumograph, and generate an electrical current, it opens up a field of physiological disturbances that invites investigation. It well may be that in such influences we shall find the unsuspected origin of all sorts of bodily derangements. If, further, it shall be shown that such a complex can thus affect the body without itself becoming conscious or co-conscious, the range of influence of the dormant consciousness or organized physiological residua becomes enormously extended.

VISCERAL DISTURBANCES

A consideration of the physiological reactions which may be induced by emotional mental states as determined by experimental investigations, allows us to see the range of disturbances which, as perversions, must occur and express themselves as pathological conditions. These physiological reactions are numerous and have been extensively described by Féré.* Mosso's work upon the effect of sensory stimulation on the respiration is well known. More recently, considerable experimental work has been done, particularly by German investigators, to determine the effect upon the circulation and respiration.†

Modifications of the peripheral circulation, manifested through pallor or turgescence and measured by changes recorded by the plethismograph in the volume of the limbs; modifications of the volume of the heart and of the rhythm and force of the beats and of arterial tension ‡ are common

*La Pathologie des Émotions, 1892.

†Lehmann: Die Hauptgesetze des menschlighen Gefühllebens, Leipzig, 1892. Mentz: *Wundt. Phil. Studien, XI.* Zoneff and Neumann: *Wundt. Phil. Studien, xviii.*, 1901. *Martius and Minnemann. Beit. zur Psych. u. Phil.*, 1905. Frederick Peterson and C. G. Jung: Psycho-Physical Investigations with the Galvanometer and Pneumograph, *Brain*, Vol. XXX, July, 1907, p. 153.

‡Féré noted a large increase (about one quarter) of arterial tension during fits of anger in an epileptic and an imbecile

phenomena. Changes in rate of the heart-beats belong to popular knowledge. It is not so well known even to physiologists that the volume of the heart may be affected by emotion. In several series of observations made upon a large number of healthy men, candidates for civil service appointments, I recorded in a high percentage not only alterations in the rate and rhythm and force of the heart-beat, but temporary dilatation of the heart lasting during the period of the examination and afterwards subsiding.* This dilatation in some cases was sufficient to lead to insufficiency of the mitral valve and to give rise to murmurs. The examination was purposely conducted so as to induce a high degree of emotional excitement, at least in many men. In another series of observations (not published) the arterial tension was measured and it was found that an increase of tension accompanied the cardiac excitation under emotion.†

Modification of the functioning of the whole respiratory apparatus, including the nostrils and the mouth, and perhaps increase of secretions ("foaming at the mouth"), are amongst the well-known physiological effects of emotions. Increase of sweat and alterations in the amount of the various glandular secretions (salivary, gastric, etc.), horripilation and rigor may be mentioned. The remarkable researches of Pawlow ‡ and his co-workers in Russia, on the work of the digestive glands, and those of Cannon § in America, on the movements of the stomach and intestines, have revealed that these functions are influenced in an astonishing degree by psychical factors.

Although it has long been known that the sight of food

*Physiological Dilatation and the Mitral Sphincter as Factors in Functional and Organic Disturbances of the Heart, *The American Journal of the Medical Sciences*, Feb., 1901; also, The Occurrence and Mechanism of Physiological Heart Murmurs (Endocardial) in Healthy Individuals, *The Medical Record*, April 20, 1889.

†The emotional factor is a source of possible fallacy in all observations on arterial tension and must be guarded against.

‡The Work of the Digestive Glands (English Translation), London, 1902

§For a summary of Cannon's work, see his article, Recent Advances in the Physiology of the Digestive Organs Bearing on Medicine and Surgery, *The Medical Journal of Medical Sciences*, 1906, New Series, Vol. CXXXI, pp. 563-578.

under certain conditions would call forth a secretion of gastric juice in a hungry dog (Bidder and Smith, 1852), and common observation has told us that emotion strongly affects the gastro-intestinal functions, increasing or diminishing the secretions of saliva and gastric juice and even producing dyspeptic disturbances and diarrhœa, it has remained for Pawlow and his co-workers to demonstrate the important part which the " appetite," as a psychical state, plays in the process of digestion. In hungry dogs a large quantity of gastric juice, rich in ferment, is poured out when food is swallowed, and even at the sight of food, and it was proved that this outpouring was due to psychical influences. Simply teasing and tempting the animal with food causes secretions, and food associations in the environment may have the same effect. " If the dog has not eaten for a long time, every movement, the going out of the room, the appearance of the attendant who ordinarily feeds the animal — in a word, every triviality — may give rise to excitation of the gastric glands." (Pawlow, p. 73.) This first secreted juice is called " appetite juice," and is an important factor in the complicated process of digestion. " The appetite is the first and mightiest exciter of the secretory nerves of the stomach." (Pawlow, p. 75.) Pawlow's results have been confirmed in man by Hornborg, Umber, Bickel, and Cade and Latarjet. The mere chewing of appetizing food, for instance, is followed by a copious discharge of gastric juice, while chewing of rubber and distasteful substances has a negative result. Depressing emotions inhibit the secretion of juice (Bickel). More than this, Cannon* in his very remarkable experiments on the movements of the stomach and intestines, found that in animals (cat, rabbit, dog, etc.), gastric peristalsis is stopped whenever the animal manifests signs of rage, distress, or even anxiety. " Any signs of emotional disturbance, even the restlessness and continual mewing which may be taken to indicate uneasiness and discomfort, were accompanied in the cat by total cessation of the segmentation movements of the small intestines, and of antiperistalsis in the proximal colon."

The effect of the mind in exciting the secretion of *saliva*,

**American Journal of Medical Sciences*, 1906, p. 566.

as determined by experiments on animals, has already been described (Chapter I).

The influence of emotion on the muscular system need hardly be referred to. Voluntary and involuntary movements, as well as modifications of the tonus of the muscles and tremor, are common effects. All sorts of disturbances occur, from increase of excitability to paralysis.

According to Féré, the pupils may dilate under the influence of asthenic emotions and contract with sthenic emotions. It is needless to recite further the physiological modifications which may be produced by mental complexes accompanied by strong emotions. It might well be expected that in certain extreme conditions these modifications would be so exaggerated or perverted as to result in true pathological disturbances. Clinical observation seems to show that this is the case and that many symptoms in a psychosis, like persistent tremor, œdema, cyanosis, nutritive disturbances, spasms, gastrointestinal derangements, etc., are most logically interpreted as the perversion and exaggeration of the physiological changes which normally follow or accompany emotion. It would also appear that the stream of general sensibility which is normally pouring into consciousness from the various organs of the body (known as coenesthesis) may become so deranged in turn by the deranged visceral processes, that all sorts of pathological sensations connected with these organs may arise in consciousness. At least this seems to be the logical interpretation of coenesthetic disturbances accompanying emotional states. It is interesting to note in this connection that a particular type of functional neurosis has been described as coenesthopathy.*

After thus summing up our knowledge of the more important physiological effects of mental complexes, including coenesthesis, it must be admitted that it is for the most part general and the whole field requires systematic investigation with methods of precision. In the psychogalvanic reflex we have one physiological process which can, with the galvanometer, be detected and its perverted association with a mental process laid bare. By psycho-analysis the origin of the perversion can be unveiled. By the appli-

*Ernest Dupré and Paul Camus: Les Cénesthopathies, *L'Encéphale*, No. 12, Dec., 1907, pp. 616-631.

cation of similar methods we should be able to trace the large number of physiological disturbances which so frequently occur in the psychoses, to perverted associations with mental complexes, and discover the origin of such perversions in experiences hidden but conserved in the unconscious.

MENTAL DISTURBANCES

We should expect from the foregoing that dormant complexes would find in the consciousness of the personal self a particularly favorable field in which to exert their influence. This in fact is the case. The now well-known word-association tests have demonstrated the unsuspected influence of the dormant complexes, when stimulated into conscious activity as memory, in altering the processes of thought of the personal consciousness. The underlying principle is of far-reaching importance and is, apparently, the same as that which governs the psycho-galvanic phenomenon. The excitation of a dormant complex attended by an emotional tone tends to inhibit or delay the processes of thought and sometimes to alter them.

This is shown in the following way: When test words are called out to the subject (as in the experiments with the psychogalvanic phenomena), who responds as quickly as possible with the first word that occurs to him, it is found that the time intervening between the test stimulus and the response (called the reaction time) is prolonged when the test word strikes an association which has an emotional character. Moderate variations in the reaction time occur, normally, but sometimes marked prolongation occurs and then it is found that a memory has been awakened that is of an emotional nature. In other words, it is not intellectual but emotional conditions which determine, within certain limits, the reaction time.

The following results of a series of tests, taken from Peterson and Jung (" Psycho-Physical Investigations with the Galvanometer and Pneumograph "), will illustrate. The time is in seconds.

" The four italicised numbers are abnormally long reaction times. The stimulus words are quite ordinary, not difficult, and are such as commonly carry numerous current

Stimulus Word	*Reaction Word*	*Reaction Time*
Head	Hair	1.4
Green	Meadow	1.6
Water	*Deep*	*5*
Stick	Knife	1.6
Long	Table	1.2
Ship	*Sink*	*3.4*
Ask	Answer	1.6
Wool	Knit	1.6
Spiteful	Friendly	1.4
Lake	*Water*	*4*
Sick	Well	1.8
Ink	Black	1.2
Swim	*Can swim*	*3.8*

connections. By questioning the patient, we learn that recently, when greatly depressed, he had determined to commit suicide by drowning. *Water*, *lake*, *ship*, *swim*, were words that excited this complex."

As to the cause of the interference with the reaction, it must be sought for in the strong emotional tone of the complex. "Individuals with good powers of introspection often affirm that they could not respond quickly, because of the sudden crowding into consciousness of a number of words among which they could find none suitable for the reaction. This is easily understood, for strong effects always collect numerous associations around them, and, on the other hand, an assemblage of associations is always accompanied by an intense emotional tone. In some cases we have an opposite condition from the above, and the test persons are not able to react because of a vacuum in consciousness, in which event the complex hinders reaction by simply not appearing in consciousness. Thus the underlying thought complex sometimes carries too much into consciousness, and at other times too little, in either case disturbing the uniform flow of psychic functions. It acts like a peacebreaker in the psychic hierarchy. Such being the behavior of the complex under normal conditions, it is easy to understand how it may play the chief part in abnormal mental states based upon disordered affectivity.

"Lengthened reaction time is not the only index of a

complex. If the stimulus word causes a sudden embarrassment and brings out some striking and unusual reaction word, it is certain that a complex has been struck, so that any reaction out of the ordinary may also be regarded as indicating the presence of an emotional thought complex.

"It is not infrequent to observe a lengthened or disturbed reaction also in the second reaction after some critical stimulus word, so that we have a persistence of the effect to the next following reaction, a fact which also may be taken to indicate the existence of a complex.

"And, finally, we have in the method of reproduction another excellent aid for the discovery of the complex. When the series of stimulus-words has been finished, the list is gone over again, and the test person simply asked to repeat the word he had given before in response to the stimulus. We then notice that where stimulus-words touched upon a complex, the memory plays false, and the test person tends to react with some other word than the one first given. This paradoxical phenomenon depends altogether upon the influence of a strong emotional tone. The complexes are often unpleasant and create a natural resistance in the individual; but they are not always unpleasant or painful, and even with such complexes as the test person would be perfectly willing to reveal, there is yet an inhibition present which shows itself in like manner. The cause of defective reproduction must lie in the general nature of the complex as already described, in a certain independence of the complex, which comes and goes according to factors peculiar to it, and not at the behest of consciousness, and which yields the self-generated associations, and not such as are sought by consciousness. We, that is, our conscious selves, are on the whole in a sense the resultants of competitions in the unconscious." *

It may be added that it would seem that, whether or not a word-stimulus shall awaken one association in the dormant consciousness rather than another, depends upon the intensity of the emotional tone belonging to each.

*Peterson and Jung: Psycho-Physical Investigations with the Galvanometer and Pneumograph in Normal and Insane Individuals, *Brain*, Vol. XXX, July, 1907.

Ordinarily when the dormant association is awakened the subject becomes aware of it and can recount it. But it is "extraordinarily common for the test person to be unconscious of the complex disturbed by the stimulus-word and to be unable to answer questions relating to it. It is then necessary to employ the psycho-analytic method, which Freud uses, for the investigation of dreams and hysteria," and by this method the disturbing complex is found. At least this is the interpretation of the Zurich investigators, who conclude that in such cases, as with the galvanic phenomenon, Freud's theory — namely, that unconscious processes *without* rising into consciousness can affect the stream of personal consciousness — is applicable, and that this is the correct interpretation of these particular phenomena. If so, as I have said, it has far-reaching consequences.*

Jung incorporates this theory into his own theory of the mechanism of the symptomatology of dementia præcox. He would attribute many of the symptoms of this disease — such as hallucinations, insane ideas, delusions, etc. — partly to the influence on the processes of thought of dormant complexes, *while these are unconscious*, and partly to the revivification in *consciousness* and ideo-genetic influence of dormant complexes which represent past experiences, perhaps forgotten as such. The evidence for this *latter* as presented by the searching and painstaking analysis and researches of Jung and his co-workers seems cogent and offers a new conception of the symptomatology of this disease. It is evident that the same principles ought to hold true to a greater or less extent in other insane conditions.

EXCITATION OF PSYCHOPATHIC STATES

In the psycho-galvanic reflex the phenomenon consisted

*According to the Zurich investigators who accept Freud's theory, it is the unconscious complex which induces the emotion, but as I have already pointed out and hope in another chapter to show more conclusively, this interpretation is not required to explain such word association and galvanic reactions. An emotional association with the test word, the origin of which has been forgotten, is all that is demanded. Psycho-analysis may show the complex which originally gave rise to the association, but this discovery is not in itself proof that this complex functions and produces the reaction.

in the excitation of an electrical (physiological) reaction by *a stimulated memory*, and in the word-association reaction in the inhibition of thought by the same; in Pawlow's experiments, in the secretion of saliva and gastric juice; in Cannon's, in the inhibition of gastro-intestinal movements by the same mechanism, and so on with numerous other emotion-reactions. A study of the neuroses and psychoses by one or the other of the methods of psycho-analysis shows that the same mechanism can induce quite complicated psychopathic states as well as these elementary phenomena. The psychopathic complex plays the part of the physiological reflex (secretions, etc.) in the mechanism and may include them; otherwise the mechanism is the same. The psychopathic complex organized by previous experience behaves like any organized physiological process, digestive, vascular, secretory, or other. The complex may be one of the association (habit) neuroses previously described (Chapter I), an obsession, or a dissociated trance, apsycholeptic or other state. I refrain from citing illustrative cases from a desire not to load these pages with details, but I may point out that such a psychopathy has its prototype in normal life. My intention here is only to correlate the well-known mechanism of certain physiological processes with that of certain psychopathic processes and finally with that of normal mental life.

It is common knowledge that after a complex has become dormant, any idea or physiological excitation which, in the experience of the individual, is associated with any one of the elements in this complex may arouse the complex. Every one can undoubtedly recall from his own experience instances of the rushing into consciousness of complexes of this sort awakened through association by some chance word dropped in the course of conversation. Such complexes may be pleasant or unpleasant. In the former case there is experienced, perhaps, an emotional thrill of a pleasant character, a feeling of exaltation and increase of energy with various corresponding physical sensations; in the latter case, an emotional thrill of disagreeable character and a feeling of depression and decrease of energy, to which various physical manifestations, such as tremor, palpitations, etc., may be added. Some people cannot hear certain pieces of

music or go to certain places or talk about certain things without experiencing distressing memories and sensations. One has only to mention this fact in a company of persons to have a recital by one or more of those present of examples of such individual peculiarities. Quite recently, during a conversation on this subject, a distinguished surgeon proceeded to exemplify it by describing to me his inability to even consider an operation upon a knee joint, without experiencing over again an emotional complex which was originally occasioned many years ago by an unpleasant legal experience connected with a disastrous operation on this joint. (The operation turned out unfavorably owing probably to the previous poisoning of the wound by a pin which had pierced the joint. The result was, therefore, in no way attributable to the operation, but the legal complications which followed so harrassed the sensibilities of the surgeon that his moral suffering was intense.) This emotional state is now reawakened whenever his professional duties compel him to perform an operation on the knee, and he can only bring himself to this point by strong effort of will.

All such experiences belong to common knowledge and the above statement is trite enough. Less trite is the action of the same principle in bringing about pathological states. The instance of Miss Beauchamp* being sent into a trance by feeling the wind softly blowing through the open window upon her face may be taken as an example. It will be remembered that the association between the feeling of the wind and the trance state was originally formed a long time previously by an episode which took place in church. A girl friend had given her an emotional shock that threw her into a trance. The wind was blowing through the open window of the church upon her face at the time. Afterwards anything that recalled this girl or the scene in the church — such as the Hallelujah Chorus which the organist was playing, the smell of incense, the sound of the wind, or the wind blowing on her face — was apt to send her into a trance.

The subject, M——l, had a yearly return of a psycholeptic state by association, presumably, with the anniversary of the first attack brought on by a fright.

*Prince: The Dissociation of a Personality, p. 87.

Similarly in another patient, Fanny S., who was the subject of frequently recurring psycholeptic attacks simulating epilepsy, it was easy to show that the cause of each attack was the awakening of a complex which was the fear of epilepsy. Anything that stimulated this complex, or any of its associated elements, regularly induced an attack; so that one could be induced at any moment and studied at will. The organization of the complex was found, through hypnosis, to have been a suggested idea — a remark, overheard while she was in a hysterical trance, to the effect that she had epilepsy. As there was amnesia for the period of this trance state this *origin* was forgotten. (A cure was easily effected.)

It is easy to see how, in this way, various sorts of pathological attacks (psycholeptic, hysterical, obsessional, etc.) can be perpetuated and how thoroughly concealed will be the exciting cause of the individual attacks unless this principle of psycho-genesis is thoroughly understood and appreciated.

In such experiences as that of the surgeon, the original episode which gave birth to the association complex can be consciously remembered and the genesis of the latter is easily discovered. But sometimes the genesis of the complex is not so obvious.

It often happens that the particular cause of or the stimulus reproducing each successive attack may, at the time, escape notice or afterwards drop out of the memory of the subject. In the trance instance of Miss Beauchamp, just cited, this was the case, and the stimulus — the feeling of the wind blowing on her face — was only discovered through hypnosis. The same is true of M——l and Fanny S. If this method had not been employed we should have remained in the dark regarding the true pathology of the attacks.

The original episode may have been entirely forgotten and may be difficult to discover. Occurring, for example, in childhood, this is usually the case. In such circumstances the emotional part of the complex, associated with some idea that once was an element of the original experience, survives as a sort of automatism. The elemental idea now

acts as an excitant of the emotional automatism. This principle may be called the *splitting of complexes*. One or a few ideas only persist in association with the emotion which originally belonged to the whole experience. These ideas and the emotion then become welded into a new limited complex. The remainder of the original experience is forgotten and may or may not persist organized in the unconscious. If it does not, it cannot be recalled voluntarily or by any artificial device. If it does persist as a dormant organization, although it cannot be voluntarily recalled, it may be by special devices (hypnosis, automatic writing, "hypnoidization," Freud's psycho-analysis, etc.).

Again, while the original episode is remembered in substance, the connection between it and the emotional complex may be forgotten, owing, perhaps, to the connecting idea having been an inconsequent part of the original experience and therefore smothered, so to speak, by the ensuing emotion (Mrs. C. D.). Or, the emotional complex may be excited from time to time by some association in the environment which was not consciously recognized, and therefore its relation to the original episode not suspected. The unrecognized stimulus may be something seen by peripheral vision (Mrs. W.), or a word heard without the subject being aware of having heard it (Miss F.). Sometimes, in such cases, the excitant is consciously perceived and recognized at the moment, but being insignificant in itself, under the stress of the ensuing emotion it passes quickly out of memory and the subject is unable to find a cause for the attack.

Or the emotional complex may have its excitant in co-conscious ideas aroused by any given test idea. The subject, of course, would not be aware of these ideas and therefore would be incapable of explaining the reaction (Cases of Miss Beauchamp, B. C. A.).

It is obvious that, only by a resort to one or other of the methods of psycho-analysis with which we are now provided, the mystery surrounding the pathology and cause of many pathological attacks can be unravelled.

We are indebted to Freud for having emphasized the principle of forgotten complexes and the importance of resurrecting them out of the unconscious. Originally using

hypnosis for this process, he now prefers his passive method of what he calls "psycho-analysis." The principle, however, is the same, though the technique may be different. It must not be forgotten, however, that the principle of dissociation (forgetting) of complexes and their reproduction by artifice has been utilized by all students of the "subconscious" for many years, and was established by Janet long before Freud's investigations. The latter's interpretation of the results and of the mechanism of the functioning of the unconscious are open, in important particulars, to serious criticism. He does not seem to have considered, for instance, the principle of the splitting of complexes, as we shall later see. Freud's theories, which have so deeply impressed the Zurich school, are severely impaired by defects which would seem to have followed from his entire disregard or unfamiliarity with the methods and results of experimental psychopathology. If we are to establish sound principles underlying the mechanism of the mind, we must correlate the findings of all methods of research, experimental as well as clinical, and give due consideration to the results obtained by all competent investigators.

INFLUENCE ON THE MENTAL PROCESSES OF EVERY-DAY LIFE

Passing now from these investigations into special effects following the stimulation and revival of dormant complexes, psycho-analysis shows certain general effects upon the mental processes of every-day life. It is a mere truism to say that it is upon the unconscious that we rely for the determination of our judgments, our beliefs, and our conduct, though we may not phrase the fact in such terms. For the unconscious is the storehouse of our knowledge and experiences from which we draw for the needs of practical life. Opinions, too, in particular epochs of life once formed are conserved unchanged in the unconscious until modified by new experiences, and new experiences are judged by comparison with past experiences. A moment's reflection is sufficient to make it apparent that in normal life the *awakening* of physiologically conserved complexes is the mechanism by which past experiences are compared with the present,

data weighed, judgments formed, desires awakened, courses of action decided upon, etc. In short, the revivification of past experiences (represented in a dormant complex) modifies the stream of mental life; it tends to so rearrange experiences that the stream of thought and desire takes a new course. "Ideas lead to intense determinations, or are modified and even suppressed in the clash of conflicting experiences;" but the converse is also true, in that complexes formed by past experiences tend to become modified by the clash with new experiences. The new ideas enter into them and displace or re-enforce former ideas, their elements become rearranged or new combinations are established, resulting in new complexes with new points of view, revised judgments, and new desires. And, amongst the most important of all, the emotional tone, the element that furnishes the energy that intensifies ideas and determines actions, becomes modified or completely altered; depression gives place to exaltation, or vice versa.

An example of this rearranging of complexes from the clash of experiences may be found in the therapeutic and ethical efficacy of prayer. Under the duress of conditions for which the individual seeks relief, the ethical ideas pertaining to prayer, ideas which, in most people, have repeatedly been instilled as a part of their religious education and therefore are the residua of an old complex, are brought into conflict with those for which the individual seeks relief. The religious emotion belonging to the ethical complex intensifies its influence. There is a commingling of the two complexes, or rather the ethical ideas are substituted for the offending idea in the disturbing complex, which becomes modified and rearranged thereby; it takes on a new point of view, new associations, a new emotional tone, and, it may be, new desires, new aspirations, and what not. If the disturbing complex has been one of a pathological nature it may have induced, as by-products, a train of disturbances in the functioning of the various organs of the body (heart, vessels, secretory glands, viscera, etc.). These disturbances and the perception of them in consciousness — the latter known as coenesthesis — may be the physical accompaniment or manifestation of the emotion. These tend to dis-

appear with the installation of the new-formed healthy complex which does not perturb the physiological functions, and we have the therapeutic finale. A large factor in the production of these by-products of pathological complexes, as I have constantly insisted, is the character and intensity of the emotional tone belonging to them. Likewise, as we shall see later when discussing the theory of psycho-therapeutics, the emotional factor plays a very important part in the restoration of the healthy personality.

Now, it was pointed out in the last chapter that in certain individuals a complex of past experiences, instead of being modified by the clash of new experiences, may be obstinately conserved in approximately its original organized form in the unconscious (physiological vestigia). It may be revived over and over again with little change in its composition. This fixity may be due to the intensity of the emotional factor or to other conditions which we know little about. Sometimes, unquestionably, the weakening of inhibiting and correcting ideas by a limitation of the field of consciousness (dissociation) is the favoring condition. However that may be, the complex persists, fixed, in the unconscious, subject to frequent resuscitation. Such a complex, then, tends to dominate the life of the individual and is known as an obsession. Frequently it is of a kind that makes for the disadvantage of the individual and misadjusts him to his environment — baseless fears, as of disease; foolish impulses, as to pick up every piece of paper; useless doubts, as about a future life; tormenting scruples, as of conduct. Such a complex represents, of course, only a perversion of the normal association mechanism. Now clinical experience shows that complexes of this kind, instead of being modified by the clash of new experiences, themselves modify the course of mental life. When revived, they not only produce all sorts of visceral disturbances and inhibitions of the stream of thought, but, acting like a major premise in a syllogism, they determine the inferences, the judgments, and conduct of the individual. Reasoning from them as fixed ideas held to be valid, the individual interprets the environment and regulates his conduct whenever the complex is stimulated. A patient, for example, who had a fixed idea of fire, reasoned out daily

the possibilities of danger from every flame in her environment: it was physically possible that a spark might fly out from the fire burning in the fireplace into her clothes as she passed, therefore her clothes had to be examined; it was possible that when a candle was blown out a spark might have lodged somewhere, so everything near by had to be inspected; it was the same with lighting or extinguishing a match, and so on. Going to bed became an hour's occupation for the family. In other respects the patient was clever, bright, and intelligent, though neurasthenic.

Thus complexes, perversions of the normal in themselves and conserved in the unconscious, when revived as memories alter the course of normal mental life, produce psychoses and misadjust the individual to the environment.

In another chapter we will take up the question whether conserved complexes, without becoming conscious, can influence the psycho-physiological organization, and the experimental and clinical evidence bearing upon the mechanism of the unconscious.

CHAPTER V

How do Dormant Complexes Function?

WE have now reached a point from which we may consider a very important and far-reaching question: namely, can unconscious complexes, while still remaining dormant, i.e., without rising into consciousness, affect the personal consciousness and the physiological functions of the body, and if so how?

Let us clearly understand the problem.

We may have seen that conscious experiences may be conserved as physiological complexes, no matter in what state of the personality they occurred and notwithstanding that they cannot be consciously and voluntarily recalled. We have seen that when capable of conscious recall, as conscious memories, they enter into the normal mechanism of thought and may disturb the psychological and physiological functions (association, psycho-galvanic and visceral reactions).

Now the question is, can they do so without becoming conscious memories, i. e., can they function and exert an influence upon the conscious and physiological life of the individual and still remain unconscious?

The possibility is a reasonable supposition. The theory is in principle identical with that of "unconscious cerebration," a theory advocated many years ago by Carpenter, the eminent English physiologist, to account for certain well-known phenomena such as the solution of intellectual problems without the individual being aware of the process. Carpenter, however, was not acquainted with the modern theory of co-conscious ideation, which is quite sufficient to account for the facts his theory sought to explain. The problem is plainly that of the functions of the unconscious, i. e., of physiological complexes.

Before considering the facts directly underlying the problem at issue, let us study a class of phenomena which are closely related to the dormant consciousness and which have been interpreted as direct manifestations of its complexes, but which are clearly open to the interpretation briefly referred to in the preceding chapter, namely the *splitting of complexes*. This principle acquires a practical importance from the fact that it provides the mechanism for many normal and abnormal conditions.

SPLITTING OF COMPLEXES

In the last chapter it was pointed out that in making the word-association and the psycho-galvanic tests, emotion-reactions of which the subject can give no intelligent explanation, may be obtained. An emotion which seems to be bizarre, without meaning, is aroused by a word and expresses itself by one or the other of the above tests. It was further pointed out that in such cases when resort is had to some form of psycho-analysis, whether hypnosis, automatic writing, abstraction, hypnoidization (Sidis), or crystal visions, it is often found that the emotion had its first association with the word in an experience which, for one reason or another, has been completely or incompletely forgotten. By stimulation through one of the above devices of the

organized unconscious complexes representing this experience, these may be awakened and, with this awakening, conscious memory of course arises. The stimulation is involved in the technique of the procedure. By such methods a memory of a forgotten episode surprisingly rich in details is obtained and gives a complete explanation of the first occasion and welding of the emotional association previously clothed in mystery. The minuteness of the details is often astonishing and far exceeds that of ordinary voluntary memory.

All this wealth of memory has lain dormantly organized in the unconscious,— dissociated, if you like, beyond the reach of voluntary recall. Now it has been inferred that, because of this persistence of organized experiences in the unconscious, the psycho-galvanic, respiratory, word-associative reactions, etc., were caused by the buried unconscious complex rather than by the word idea itself. It has also been argued that the forgetting of names, the substitution of wrong words in conversation, and similar incidents of every-day life are due to this same subtle influence. A suppressed memory inhibits the recollection of some word which it includes, or shoves some irrelevant word into conscious thought and speech. Again in hysteria, emotional memories which are put out of mind and suppressed and therefore cannot find their natural outlet in conscious expression, are " converted " into various hysterical manifestations, such as hallucinations, spasms, etc. A cure is supposed to result simply from a process of " catharsis " or the resurrecting into the region of full consciousness the forgotten experiences. Translating this metaphorical and somewhat poetical language, it means that the unconscious complex functions without rising into consciousness.

According to this interpretation a test word (*cat*, *boat*, *snake*, for instance) gives rise to a mysterious emotion, not because the word has become associated, one way or another, with an emotional tone by a mechanism which has been forgotten, but because it stimulates a forgotten unconscious complex which in turn stimulates the emotion which continues to be a part of the complex. The emotion then alone arises in consciousness; the remainder of the complex

remains unconscious. In other instances it is held, as I understand it, that the whole complex including the emotion is "suppressed" and remains buried in the unconscious and there functions so as to produce one kind of reaction or another. Parenthetically it may be said that it is impossible to prove that no emotional tone exists in consciousness in association with any given idea. Whatever may be the meaning of those who hold this somewhat mystical theory, this is the only intelligible meaning that it can have. The instance of cat phobia, cited on page 398, is a good illustration. It will be remembered that the subject has a horror of cats, particularly white cats, and is thrown into a state of trepidation at the sight or even mention of one.

Now plainly, on careful consideration, all that we are entitled to conclude is that the idea of cat has in some unknown way acquired an emotional tone which in ordinary experiences is not associated with it. The real question for investigation is: How did this idea acquire the unusual emotional tone? Not, what mysterious unconscious influence is at work?

We have the same phenomenon as an almost every-day occurrence in conscious life. To take concrete actual examples: one person cannot look at the sea without becoming nauseated; another cannot think of eating a certain article of food without the same result; another cannot hear a crashing noise without experiencing trepidation; another cannot speak of a certain hospital without the same result; another is frightened by the sound of the wind so intensely that when he had a house built he had it bolted to a rock; another, Miss Beauchamp, is thrown into a state of terror and a neurasthenic condition by a thunder storm;* and so a whole list of cases of phobias can be mentioned. In all these particular cases, the original experience which gave rise to the emotional feeling can be recalled to consciousness. In the one case, it was repeated attacks of seasickness; in the next case an attack of nausea and vomiting which followed eating the particular food; in the next a railroad accident; in the next an experience of childhood when he was obliged to sleep alone in a remote part of the

*"The Dissociation of a Personality," pp. 65 and 215.

house which, from its situation, was exposed to the winds which whistled through the chinks and shook its light construction; in the next (Miss B.) it was an intense emotional experience which occurred during a thunder storm. The excitation of the emotion in all these instances does not necessarily recall the original experience, although the latter could be remembered if desired when the memory was searched. The feeling had simply become associated by a cross cut or short circuit with a given stimulus, so that the excitation of the stimulus, whether a word or noise or object, change in the environment aroused the feeling. This is a common experience, and we have no need to seek the mediation of an unconscious complex simply because, at a given moment, the subject does not go through the lengthy process of recalling the whole of a given experience.

There is no reason to suppose a different mechanism when the original experience is forgotten.

In the case of the cat phobia just mentioned, the problem was to find the origin of the fear, not a mysterious unconscious complex still exerting its influence. This, as has been already explained, was done by various test methods. After trying without success suggestion in different hypnotic states, resort was had to automatic writing in hypnosis, and then a detailed account of a fright, induced by a white kitten when the subject was a child less than six years old, was obtained. The whole childhood episode had been naturally completely forgotten, but a minutely detailed memory of the experience had been retained organized in the dormant consciousness. The original complex, however, had become split in such fashion that the fear and its physiological manifestations had become associated with the idea of a cat, while the rest of the episode remained dormant and forgotten. The emotional association — the idea of a cat and the fear — had become welded by constant repetition through a long succession of years and naturally the emotion was excited whenever the associated idea was presented. This is a simple and sufficient interpretation which accords with common experience.

If this interpretation is correct in principle, it is evident that it is all that is required to explain the word-association

and psycho-galvanic reactions which we have previously discussed. When a reaction is obtained which cannot be explained by any conscious memory of the subject, it is not necessary to assume that an *unconscious* complex has been disturbed. The above interpretation is sufficient.

In some cases an unconscious complex may be really "disturbed"; particularly in pathological conditions like hysteria; but when such is the case in the light of the evidence at hand the complex becomes by the stimulation, *co*-conscious, as in the experiments reported by Peterson and myself.* In pathological states and some normal individuals co-conscious memories are easily formed and these, as we have shown, give rise to reactions just as conscious processes do.

In the case of Miss Beauchamp I have already discussed this principle and cited examples of emotion arising from co-conscious ideas of which the subject is not aware.† The therapeutic application of this principle was also referred to‡ and I shall presently return to it. Janet and Sidis have emphasized the principle through analysis of cases. I have made large numbers of observations in both the Beauchamp case and that of B. C. A. in which I was able, through hypnosis, to discover the precise dissociated co-conscious ideas which gave rise to the emotions experienced by the personal waking self.

On the other hand, in the instance of cat phobia the whole original experience was forgotten and there were no co-conscious ideas. Sometimes, however, when this is the case, the original experience, which gave rise to the abnormal association, is not forgotten as a whole but is not connected in the patient's mind with certain details in it, or more particularly, certain thoughts or perceptions may have dropped out of conscious memory. These forgotten ideas originally provided the emotional tone which became associated with so much of the experience as was consciously remembered.

*The Journal of Abnormal Psychology, June–July, 1908.

†"The Psychology of Sudden Conversion," Journal of Abnormal Psychology, Vol. I, No. 1, 1906. "The Dissociation of a Personality." pp. 132-135, 297-298, 324, 349; Second Edition, Appendix R.

‡Ibid, pp. 324, 349 and elsewhere.

This remembered element now arouses the associated emotional reaction whenever the element is touched without the subjects knowing why. He can, if questioned, recall the original episode in the main, but does not connect his obsession or fear or hallucination, or whatever it may be, with the episode, because the connecting idea is forgotten.

To illustrate this principle, let me take the case of C. D., to which I have before referred. It was that of a most trying obsession which caused great suffering and interfered with the enjoyment of life. It consisted of a fear of fainting coming on in attacks and in consequence of which C. D. was unable to go anywhere alone. A fear of having the attacks naturally became added to the attacks themselves, which were accompanied by the usual disturbances of the functions of the body, etc. Repeated cross-examination failed to elicit any information which could throw light on the origin of the phobia, although it was highly probable that there had been an episode which originally gave rise to it. The subject could not in her memory *connect* the fear with any previous experience. When, however, she was put in light hypnosis, her memory became broadened and out of the dormant consciousness came a vivid recollection, rich in detail, of a scene of her girlhood some twenty odd years before. At once she not only recalled the scene but the *connection* between the scene and her phobia, i. e., a particular idea which occurred to her at the time but which had since dropped out of her consciousness. Without going into details, some of which are somewhat intimate, it is sufficient to say that, as the witness of a distressing family scene, she received an emotional shock and nearly fainted. While in this state of partial obnubilation of consciousness she looked up and caught sight of her face in the glass. What she saw in place of her features was a " round white object with two black dots " representing the eyes. The fearful thought flashed into her youthful mind: "Could this be death?" A few days later a second shock connected with real death — that of her mother — occurred to her under distressing circumstances.

Now the point is that this subject, in her normal waking state, remembered these episodes, *but did not remember the*

particular thought, the fear of death which came into her mind at the moment when she was in a partial faint. She had never, therefore, before connected her phobia with this incident or with the specific idea of death which occurred at that time, but further psycho-analysis showed that in the background of her mind, perhaps co-consciously, there was always the idea that fainting would end in death. Fainting, death, and fear had become strongly associated ideas and from time to time welled up as an obsession while the childhood episode had been allowed to lie dormant, insignificant, and hardly worthy of remembrance. The origin of this idea in the episode had completely dropped out of her conscious memory, although it arose vividly to memory out of the unconsciousness in hypnosis. Similarly in hypnosis the exciting cause of numerous attacks of fear could be found in particular situations, persons, or words, the association between which and the phobia could not be consciously recalled but could be resurrected as hypnotic memories. This was the case in the trance episode of Miss Beauchamp above mentioned (p.408). A memory of the particular stimulus (the wind) that called forth the attack could only be obtained in hypnosis. The obsession of C. D. was cured by appropriate psychotherapeutics.

In a case, now made classical by the studies of Breuer and Freud,* we can recognize, if I interpret it correctly, a dramatic example of this principle of the splitting of complexes and the reproduction in consciousness of one portion while the remainder lies dormant though organized. Curiously enough, the idea which is reproduced may be one which in the original experience was entirely inconsequential, some unimportant perception or thought which happened by chance to be experienced at the time and therefore psychologically to be a part of the experience, and to become incorporated in the complex. It may have been so inconsequential as hardly to have been noticed consciously. The case I am referring to exemplifies this. Miss Lucy R. consulted Dr. Freud for what, on the surface, seemed a bizarre hallucination, namely that of a smell of *burnt pudding*. Psycho-analysis, however, showed that once it had formed

* "Studien über Hysterie," Leipzig, 1895.

an inconsequential part of a large complex which involved a strong emotion such as commonly attends ethical scruples. The smell was originally but an accidental perception of the environment which happened to occur at the moment of an emotional crisis. At this moment, as the result of a struggle of conscience, she arrived at a, to her, momentous decision. The essential emotional factor in the complex she then attempted to deliberately suppress, to put out of her mind, and it had become dormant, but she did when urged consciously recall the whole experience. The smell had, however, acquired an emotional tone and had thereby persisted as a memorial hallucination. The story in brief is as follows: The subject, an English governess in the family of a German manufacturer, had unconsciously fallen in love with her employer, a widower whose children she had promised their dying mother to care for always. One day, undoubtedly after a long internal struggle, sensitive to the delicacy of her situation, she was impelled by conscientious scruples to quit her trust and leave the children, who were now attached to her. At this moment, the children, who were present and affectionately playing with her (thereby probably intensifying the emotion of her impulse), had allowed some pudding, which was on the schoolroom fire, to burn. With this history the original composition of the complex is evident; unwilling to recognize even to herself the feelings of affection, she had deliberately suppressed them and they had become dormant with the memories of the scruples, though all were still organized as physiological dispositions capable of *voluntary recall*. The memory of the smell had become split off, and uniting with more or less of the emotional element of the complex, had persisted as an involuntary automatism, an hallucination. It is worth noting that after the discovery of the origin of the hallucination it was easy to cure it.

The remainder of the history of this case furnishes not only another illustration of the same principle, but is an excellent example of the conservation of mental experiences which *cannot be voluntarily recalled* and the possibility of reproducing them by special devices. The following condensed account of this portion of the case is taken from Myers.*

*F. W. H. Myers: "Human Personality and its Survival of Bodily Death," Vol. I, p. 52.

"As the scent of burnt pudding went off it became clear that another scent had underlain it, which still persisted — a scent of tobacco-smoke. It seemed impossible to trace the moment of origin of so every-day an odor. But by strong suggestions in a waking or lightly hypnotized state,— placing his hand on the patient's forehead,— Dr. Freud was able to evoke a stream of pictorial memory, closely analogous to crystal vision. He called upon her to picture thus the scene required. Then slowly and fragmentarily 'a picture rises to the surface' (*auftaucht*). But it represents only the dining-room of her employer's house, where she is waiting with the children for his return to early dinner from the manufactory. 'And now,' she says, 'we are all sitting down at table — the gentlemen, the French governess, the housekeeper, the children and I. But this is just an every-day scene!' 'Go on looking at the picture,' replies Dr. Freud, 'it will develop and specialize itself.' 'I see that there is a guest, the head cashier, an old gentleman who loves the children like an uncle; but he comes so often to dinner that there is nothing unusual in his presence.' 'Patience! go on looking at the picture; I am sure that something will happen.' 'Nothing particular happens. Now we are rising from the table; the children are leaving the room, and are going into the next room with the French governess and myself as they always do.' 'Well, what next?' 'Ah! here is an unusual circumstance, and now I recognize the scene completely! As the children leave the room the cashier makes as though to kiss them. The father jumps up and calls out roughly, "Don't kiss the children!" I feel a kind of stab in my heart. The gentlemen are smoking; hence it is that the smell of cigars remains fixed in my memory.'"

The mechanism of this automatism is equally clear with the first. The stab in the heart was the emotion caused by the application to herself of the unfeeling attitude of mind of her employer to his other subordinate, an old friend, too. This emotional tone had intensified the organization of the smell which had later become split off and persisted as an hallucination, while the memory of the remainder of the episode had been deliberately suppressed and had become dormant.*

*Dr. Freud interprets the phenomenon differently, viz., the memory

The splitting of complexes may be carried still farther. There is abundant evidence to show that, when once abnormal associations have been formed, pure physiological stimuli which do not reach consciousness may, by a short-circuited association with an emotion, arouse the latter and all its physiological manifestations without awakening the remainder of the dormant complex; this, for the moment, lies fallow. Elsewhere* I have cited an observation which it would not be difficult to multiply and which I repeat here. One of my patients, a so-called neurasthenic, Mrs. W., while passing a certain house, suddenly experienced an emotional symptom-complex of a purely physiological character (palpitation, feeling of suffocation, general exhaustion, etc.). She had not noticed the neighborhood and did not consciously recognize the house, which resembles in design the neighboring houses in the same block. Startled by her symptoms, she looked up, half in search of a cause, and then for the first time recognized the house she had just passed as a private hospital where three years before she had had a very harrowing experience connected with her child's illness. It should be explained that she had just returned from Europe and on the way from the steamer dock to her hotel, had not realized the locality through which she was passing. Associations of this hospital were in her conscious memory and had often revived the harrowing complex of her experience there and were so unpleasantly strong that she could not bring herself even to engage a nurse connected with it. This experience is similar to numerous others of the same kind which Mrs. W. has had in connection with other experiences of her life and in which the same symptoms have been excited by association of ideas. The explanation of this particular experience which first suggested itself was that Mrs. W. co-consciously recognized through peripheral vision the hospital as she was passing and that the co-conscious perception aroused the symptoms.† But a careful exam-

of the emotional experience while organized in the unconscious still functioned without rising into consciousness as memory. This interpretation is unnecessary and is unsubstantiated by proof.

*The Dissociation of a Personality, p. 263.

†For Experimental Evidence for co-conscious peripheral perception

ination in two hypnotic states failed to show any co-conscious recognition or any perceptions different from those of the waking consciousness. We are forced to conclude that the unconscious peripheral visual images of the house alone, by pure association, aroused the emotional symptom complex, as an automatism.*

It is interesting to note that it was possible to artificially reproduce this episode in deeper hypnosis. Hypnotizing her more deeply she was carried back as in a dream to the moment of leaving the steamer. In this deep state she "dreamed" she was making the journey from the dock to the hotel; again she was riding in the street car; again she alighted, walked a short distance, and then, just as she reached in her imaginary journey a certain spot (the place which she had previously described minutely as the one where the emotional complex had so mysteriously occurred) suddenly she was seized with great agitation, palpitation, disturbance of respiration, etc. Then and *after* the development of these symptoms she turned her head to the left, looked up and exclaimed in an agitated way: "Yes, that's it; that's the house!"

She was taken through this dream several times and the details and their succession studied with great care. Nothing was suggested but the journey through the streets. As often as she reached the exact place where the attack actually occurred, suddenly off it would go again and repeat itself with mechanical precision.†

DAILY LIFE

Our illustrations of the principle of splitting of complexes

see Prince and Peterson: JOURNAL OF ABNORMAL PSYCHOLOGY, June–July, 1908. Other evidence will be given in a work on the Co-conscious now in preparation by the writer.

*It must be recognized, however, that the failure to find in any particular hypnotic state a memory of co-conscious perceptions or other ideas is not proof positive of their non-existence. The reproduction of dormant memories may require not only special devices but may be only effected in special states, not easy to obtain.

†For an account of the same phenomenon in the form of convulsive seizures, etc., see "Pathology of Hysteria," Sidis, Prince, and Linenthal, Boston Medical and Surgical Journal, June 23, 1904.

have thus far been drawn from special emotional experiences which had been partially or completely forgotten. These, after all, are only exaggerated instances of common happenings in every-day life. A little consideration will show that the great mass of our ideas involve associations of the origin of which we are unaware because the memories of the original experience have become spilt and a large portion thus has become forgotten even if ever fully appreciated. We all have our prejudices, our likes and dislikes, our tastes and aversions, which our friends often irreverently call our "fixed ideas." It would tax our ingenuity to give a sufficient psychological account of their origin, though no doubt we could often enough invent one satisfactory to our own conceit, though not to a student of psychology. They were born long ago in educational, social, personal, and other experiences, the details of which we have this many a year forgotten. It is the residua of these experiences that have persisted and become associated into complexes which are retained as traits of our personality. Sometimes these are of a highly emotional character and sometimes they are indifferent. Likewise our political, religious, and other formal beliefs have their origin in an educational and social training, which has left systems of ideas which are but the siftings of numerous and wider systems. Many complexes have been split and memorially destroyed, as it were, to provide the material for the resulting belief. The emotional tone belonging to a political bias, for example, which makes us wax hot in debate and which we are foolish enough to believe is the righteous expression of new experiences, may have come from some long forgotten personal experience — some thought or action, some ephemeral episode long passed into oblivion. There is every reason to believe that much of this forgotten history can be recovered by appropriate psychoanalytical methods.

ABSTRACTS

TELEOLOGICAL AUTOMATISM TOWARDS SUICIDE: A CASE OF SUICIDE PREVENTED BY AN HALLUCINATION. *By Th. Flournoy. Archives de Psychologie*, Vol. VII. No. 26, Oct., 1907.

A YOUNG married woman, much admired and petted, became acquainted with a young doctor of Geneva while at a summer resort with her mother.

His seriousness and force of character excited an admiration and respect in the spoilt child who had always before been treated rather as a puppet than a thinking being.

Although she was of agnostic tendencies, his firm faith, maintained without rancour, only increased her respect during their numerous discussions of philosophy and morals.

Having suffered the serious chagrin of an estrangement from her husband, and the belief that she had contracted syphilis from him, she became preoccupied by the thought of suicide; and this culminated one night before a ball after one of her children had wept on being repulsed by her on account of her fear of infecting the child.

Returning home tired after intentionally showing unusual gayety at the ball, the horror of her lot seized her so strongly that she impulsively rushed to the wharf on the lake alongside which she lived, and bent over to look into the water, which at the moment attracted her strongly: when suddenly, from the water, rose a vivid picture of young Dr. T., looking stern, and talking in the harsh voice he had once used to her in reproof. He clasped her round the waist and by the shoulder, and led her home, all the while pointing out the enormity of her contemplated act and showing her how her duty lay with her children.

As to what dictated Madame d'A.'s choice of the person who appeared in the hallucination, even if telepathy were proved true, an occultist explanation can be excluded here, because Dr. T. did not even know that she dreamt of destroying herself and he had no particular thought of her at the time. Moreover, for three months they had been corresponding, being led to do so without deliberate intent; and indeed at that moment Madame d'A. carried inside her corsage a letter received just before the ball, of which she had postponed the reading until a more tranquil moment; hence an undertrain of thought of him must have run through the evening,

especially as she felt that Dr. T's opinion about her disease and course was the most valuable she knew: he was the incarnation of prudence, reason, morality, trust in the ideal. Even her annoyance at his opinions came from her feeling of their superiority. He had taken the place of a director of her conscience. For even although, unlike a hypnotizer, he had never directly commanded or suggested her in any way, his whole relation was one huge suggestion towards moral courage and hope.

As in most dreams, a certain fantasticalness showed itself; thus the doctor was dressed in alpine costume (this was due to the preponderance of a first impression; for the first time she saw him he was thus dressed) but as a matter of fact he had never placed his arm round her waist, nor caused her to kneel at his feet, nor reprimanded her directly, nor spoken to her in the second person singular, although they always spoke in French.

Although three and a half years have elapsed, no similar phenomenon has occurred to Madame d'A. At first she believed in its reality, though hardly in its miraculousness; but after a few days she suspected that it was illusory.

In essaying an interpretation of this phenomenon, Flournoy first discusses the applicability of physiological or metaphysical considerations, and believes that conceptions of divided personality as illustrated in Morton Prince's case, or the subliminal-self notion of Myers cannot be invoked here because of the lack of any other indications of dissociation in the rest of the patient's life. As to the sejunction hypothesis of Wernicke, its unverifiability and universal applicability give no real assistance. Flournoy therefore seeks a psychological explanation; and accordingly believes that the hallucination of the patient is comparable to such an evocation of her hypnotizer as was shown by one of Janet's hysterics to whom he appeared as soon as she wished to act contrarily to his instructions. A still more apt analogy, however, is that of moral or religious conversion or the abandonment of a bad habit on account of a sudden shock. This, as in the case of Saul of Tarsus, may be hallucinatory. He believes inapplicable too the explanation by mental level oscillations, the subterranean action of unpleasant impressions crowded out of consciousness, the hyperexcitability of dissociated complexes on account of their reserve energies. These are less in the nature of different phenomena than the varying mode of explanation by different psychologists, such as Janet, Freud, Jung, Morton Prince, Sidis, etc.

He uses the word teleological not in the sense of purposive consciousness, but in the sense of biologic usefulness, conscious or not. He compares the mechanism of this case to that of somnambulisms, which he believes, after Jung, may have an important function in the development of the personality, and are comparable to the more usual phenomena of mental readjustment occurring during sleep, the sudden arising in consciousness at opportune moments of long-forgotten facts, and the unaccountable hesitations which sometimes obviate false steps. In this sense, Madame d' A.'s hallucination is the acme of teleological usefulness, for it saved her from instant death.

The most interesting feature of the case, however, is not the pathogenesis, but the critical dissociation of the fixed idea. At bottom the crisis was merely the sudden ascendency of motives of superior force which had been temporarily buried during physical depression, increased by the moral depression of the sudden shock when Madame A. made herself suffer by repulsing her child.

The hallucinatory objectivisation of these motives is compared to the similar case of Benvenuto Cellini during his imprisonment by the Pope, when his careful preparations for suicide were suddenly interrupted by an invisible presence which tore him away from the block he had balanced, and flung him into the corner of his cell, forever banishing the idea of suicide. Both cases present an unusual factor in that the cause of the perturbation favors the state of mind which accomplishes the cure.

In spite of this, the author believes that Mme. d'A.'s gayety at the ball was less due to calculation than to a sentiment of reassurance against the idea of suicide. An even simpler explanation is the fact that Mme. d'A.'s acts were regulated by the instinct for approval which we all possess so strongly. A perfectly natural process of reasoning *pro* and *con*, such as would have taken place with Dr. T., could very easily in her crepuscular state be objectivated into an hallucinatory representation. From this point of view, the whole proceeding was a catharsis against the morbid notions she had sought to bury from her thoughts. Catharsis connotes cure, even when it is accomplished by the ordinary means of confession, avowal, or mere discussion. Thus a confidential chat would have obviated the need for the hallucination.

After discussing the less clear variation of antisuicidal automatism so common in newspaper accounts, and the struggle against the

metaphorical suicide of the spiritual death of changing one's religion, the author concludes that the completely developed type must necessarily be very rare, and hence can have little effect in counterbalancing the increasing tendency to self destruction induced by stress of modern civilization. For its realization, one requires firstly, the imaginative capacity for an evanescent dissociation; secondly, a sufficiently resilient or rationalistic temperament to prevent profound discouragement; thirdly, a set of circumstances provocative of an acute desire to finish with life; and fourthly, moral isolation from any actual confident capable of removing the unhappy thoughts.

TOM A. WILLIAMS

REVIEWS

NEUROLOGICAL AND MENTAL DIAGNOSIS. A MANUAL OF METHODS. *By L. Pierce Clark and A. Ross Diefendorf.* 12° pp. 188. New York, 1908. The Macmillan Co.

THIS little book fulfils its purpose exceedingly well; that of furnishing a convenient scheme for the use of general practitioners and students in making examinations in neurological and mental cases. If the scheme be followed intelligently one can be fairly sure of not missing any essential facts in the case. In the second part in particular, that on the examination of mental cases, Dr. Diefendorf has done excellently in explaining clearly how to examine for the essential defects in mental disease, and in explaining the meaning of such symptoms as " blocking of the will," " negativism," and others to which those not especially familiar with mental diseases usually pay little or no attention. The addition of examinations of particular cases is also useful in illustrating the use of the scheme of examination. It would have been better perhaps for the sake of clearness if Dr. Clark, in the neurological part of the book, had followed the procedure of his collaborator and given a series of cases, rather than to combine the essential parts of several cases in one examination, as this is somewhat confusing. Particularly to be commended in the first part are the clearness and simplicity of the description of the methods of examination of the special senses, double vision and the electrical examinations. One or two errors and omissions may be noted for correction in subsequent editions which the book deserves to have. The omission of " not," on page 43, where the meaning of

course is that an electrical response is said to be lost when the testing current cannot be borne, and yet has produced no contraction of the muscle, causes an unfortunate misstatement. Under the pupillary reactions, Wernicke's pupillary inaction sign might well have been included in view of its diagnostic importance, and in speaking of the field of vision mention of hemianopsia should have found a place. In this same place the statement that in testing the field of vision the examiner's hand should become visible simultaneously to the examiner and to the patient is obscure, if not inaccurate. In the glossary of terms used in psychiatry the definition of various phobias as forms of compulsive insanity is too narrow in view of their very frequent occurrence in psychasthenia.

JOHN JENKS THOMAS

THE PRINCIPLES OF ANTHROPOLOGY AND SOCIOLOGY IN THEIR RELATIONS TO CRIMINAL PROCEDURE. *By Maurice Parmelee, M.A.* 12mo, pp. viii, 410. The Macmillan Co., New York, 1908.

THIS is one of the volumes of the Citizens' Library of Economics, Politics, and Sociology, and is an attempt "to study criminal procedure from the point of view of the modern science of criminology." By "criminal procedure," the author means "a process by means of which the class called criminal is separated from the rest of society," "one of the most important agencies of organized society," and of very great practical importance. The book opens with an account of the development of the science of criminology, consisting chiefly of an excellent resumé of the works of Lombroso, Garofalo, and Ferri, and giving a general sketch of the present teachings of both criminal anthropology and criminal sociology. Then follows a very suggestive chapter on society and the criminal. Mr. Parmelee shows very clearly that the idea that the punishment for crime is in the nature of revenge for the criminal act has gradually faded with the advance in civilization; he shows, too, that the trend of modern thought has been to question the doctrine of the freedom of the will, and therefore to deny the moral responsibility of the criminal; the character of the born criminal in particular, and of the ordinary criminal in the majority of cases, is also such that the possibility of future punishment has comparatively little deterent effect unless the punishment be certain and very severe, and the humanitarian tendencies of the

present day tend to prevent severe punishment. The justification which society has for punishing the criminal is therefore its own defense, and that is best attained by making the punishment fit, not the crime, but the individual criminal. Criminal anthropology and sociology will enable us to determine the character of the criminal, to treat him accordingly, and thus to check and prevent his criminal tendencies. The individualization of punishment has been put in practice in America, in particular, under the forms of the indeterminate sentence and suspension of sentence with probation. This is now carried out in a somewhat empirical fashion, but, if it could be based upon a scientific classification of the criminal, combined with a careful consideration of the character and motive of his crime, it would be of much greater utility. In addition the French practice of rehabilitation, or removing from the official docket of the individual any record of his accusation and condemnation is of decided advantage. After a brief review of the fundamental principles of criminal law the author devotes the rest of the book to a critical study of the systems of criminal procedure. The methods of investigation of crime by the police are first reviewed and the suggestion is made that there should be two classes of police, administrative and judicial, the latter having a special training in scientific police methods for the investigation of crime, and the identification and classification of criminals. In the preliminary examination of the accused, the main object of which is the accumulation of evidence, the author is inclined to advocate the method of investigation by an impartial *juge d'instruction*, such as is in vogue in France. From such a preliminary hearing the public prosecutor should be excluded, but counsel for the accused might be present. Such a judge should be a man specially trained in criminal anthropology and sociology and should be able to go to the scene of the crime and make, through experts if necessary, all investigations which he may think desirable. In the actual trial, however, the English method of an impartial judge and examinations by opposing counsel, especially if to the public prosecutor be added an equally well-trained public defender, are held to be far superior to the French method. The English law of evidence, however, is often a serious bar to a thorough scientific inquiry, by its exclusion of matters of the highest importance which do not come within the limitations of the law. Furthermore, the data of experimental psychology should be used in the examination of witnesses. After a detailed considera-

tion of the merits and demerits of the jury system, the author pronounces definitely against it; the investigation now made by the grand jury can be better made by a competent *juge d'instruction*, and the verdict of the petit jury, except possibly in cases of political offenses, can be rendered far more wisely and fairly by a thoroughly trained judge. There should, however, be a special class of criminal judges, distinct from civil judges, with special training in criminal anthropology and sociology, the psychology of testimony, and practical study in prisons, hospitals, asylums, and morgues.

Mr. Parmelee's book is suggestive and full of interest. He has made a careful study of his subject and his conclusions are based upon extensive knowledge and sound judgment. Every intelligent person who takes careful note of the methods employed in any of the more notorious criminal trials in America will admit that our methods of procedure are farcical and a barrier to any just and reasonable treatment of crime. America has made certain advances in penology, but it is a curious fact that in no English-speaking country has there been any study of criminal anthropology worthy of note. That the methods of procedure advocated by the author are rational and would be a marked advance in the scientific treatment of the criminal must be admitted, but, when we consider the ignorance and narrowness of the great bulk of the legal profession, and the methods by which so many of our judges are now appointed, the prospect of the adoption of even a few of them seems hopeless.

PHILIP COOMBS KNAPP

DIE MELANCHOLIE EIN ZUSTANDS-BILD DES MANISCH DEPRESSIVEN IRRESEINS. *Dr. George L. Dreyfus Verlag von Gustav Fisher in Jena*, 1907.

SINCE Heidelberg psychiatric material shaped the evolution of modern psychiatry and was practically responsible for the downfall of the old classification of mental diseases, any communication that comes from the Heidelberg school is most heartily welcome. Dreyfus, a former pupil and assistant of Prof. E. Kraepelin's, declares in his book, Die Melancholie, that involution melancholia is closely related to manic depressive insanity, and indeed receives assent from Prof. Kraepelin, and in his own words: "At all events it appears to me that the valuable results of the submitted work have gained our support of the conception that depressive states in the involution period belong to manic depressive insanity, notwithstanding the fact that

they remain the only attacks in life, and exhibit exclusively a depressive coloring." Dreyfus's thesis is this: "Melancholia as described by Kraepelin (Melancholia Simplex, Melancholia Agitata, Melancholia with depressive delusions) is a phase of manic depressive insanity. In melancholia the prognosis is as favorable as that in circular depression, and only through the intercurrency of arteriosclerosis that it may be affected to some extent, just as in manic excitement during senescence. The considerable bodily damage, especially to the heart, which naturally follows a severe psychosis, not infrequently terminates in death as result of bodily affection after a short course of the disease. Senile depression is not an independent clinical entity. When melancholia culminates in enfeeblement then we are dealing with a circular depression in conjunction with arterio-sclerotic brain disease. Senile depression with depressed mood, feeling of insufficiency, hypochondriacal ideas, anxious nocturnal restlessness, etc., shows at the beginning the clinical symptoms of arterio-sclerotic cerebral affection and belongs to senile deterioration. It, with the exception of a few rare cases, is strictly separated from manic depressive insanity." His conclusions are based upon the study of careful and exhaustive analyses of seventy-nine cases of melancholia, which were treated in the Heidelberg Clinic from 1892 to 1906. The author personally examined a great number of the patients after their discharge from the hospital, and in cases where interview was impossible he communicated with them by mail.

The cases are divided into five groups:

First group consists of thirteen patients who suffered from one attack of depression in the involution period. At the time of the psychosis four patients were in the fifth, seven patients in the sixth, and two patients in the seventh decennium. All of them recovered. The duration of the disease varied between six months and eight years.

Second group is limited to twelve patients. Investigation showed that they were subject to several attacks of mild or severe depression (abortive). At the time of the psychosis five patients were in the fifth, five patients in the sixth, and two patients in the seventh decennium.

Third group contains seven patients who have not recovered. One patient is in the fifth, four patients in the sixth, and two patients in the seventh decennium. One may be considered recovered; the

other is convalescing; another is decidedly manic; in the rest the prognosis is due to grave complication of arterio-sclerotic brain disease. So far the duration of the psychosis is three years, five years, eight years, ten years (two cases), ten and a half years, and fourteen years.

Fourth group (no investigated cases) comprises eight patients, who apparently recovered. Three patients had many attacks of depression. In three typical circular manifestations were in evidence. In two the diagnosis of manic depressive insanity is most probable. The duration in two cases is not known, in four it varied between six months and two and a half years; one recovered in six years and the other in eight years.

Fifth group is restricted to thirty-seven deceased patients. For convenience this group is subdivided into five parts.

(1) Fifteen patients who were subject to many temporary attacks of depression before and after the involution period. The course of the disease fluctuated between three months and two years:

(2) Nine patients who had one attack of depression with circular manifestations. Two patients died after they recovered from the psychosis (duration from nine months to five years respectively); two died during convalescence (duration two and a half years and ten years respectively); five died unimproved (one suicide) (duration three months and three years respectively).

(3) Six patients who had the first attack of depression without definite circular manifestations. Only one patient recovered after nine months of the disease. Five died unrecovered. The duration in three cases was between six months and two and one fourth years. One died within ten years of the psychosis and the other within three and three-quarter years.

(4) Five patients who had the first attack of depression in the involution period without circular symptoms. In two cases the records could not be found. In the other two the duration was four days and two and a quarter years respectively. In one dementia supervened due to arterio-sclerotic brain disease.

(5) Four patients who died unrecovered from the psychosis. They were sick two and a half years, five years, eight years, and eleven years respectively. Two of them had attacks of depression and in three typical circular features were observed before the approach of senile dementia.

In fifty per cent of his cases heredity was present. In thirty-three per cent exciting causes were established and they were more

frequent in women. There were twenty-two men and fifty-seven women. Fifty-four per cent of the patients had recurrent attacks, mainly depression. The duration of the psychosis in sixty-four per cent was three years, in fifteen per cent, from three to five years; nine per cent from six to eight years; eight per cent from ten to fourteen years, and in four per cent the duration was not ascertained.

Dreyfus maintains that from a semiological point of view involution melancholia presents manifold symptoms of mixed form of manic depressive insanity. The alteration of mood which is a characteristic manic symptom was quite often observed in his patients. Irritability, fault-finding, vague complaints, querulousness, heightened self-consciousness, and grandiose ideas were of frequent occurrence. In many instances patients were distractible although profoundly depressed. Volubility with flighty utterances were recorded. As one of his patients said, " One thought conquers another one; one thought drives another one and misplaces the previous one; thus thoughts travel in one circle," or " I must always think that my brain is nearly torn." Although genuine retardation cannot be satisfactorily demonstrated in involution melancholia, and, according to Kraepelin, this is the important, nay, a pathognomonic symptom by which we are enabled to differentiate melancholia from manic depressive insanity, yet partial subjective retardation was present in a majority of the cases during the prodroma, course, or decline of the disease. It is always difficult to establish intellectual retardation in people of low mental calibre (most of his patients belonged to this class). His patients usually complained of not being able to perform simple manual labor, stated that their nerves were weak, fingers and hands were powerless, limbs were paralyzed, etc. Perplexity, inability to recall recent impressions, exhibition of poverty of thought, indecision, and general indifference are indications of retarded mental processes, and in his patients these symptoms were frequently noticed.

The outcome of involution melancholia, as in manic depressive insanity, is favorable and in his cases sixty-six per cent terminated in recovery or convalescence, and only eight per cent became demented as a result of arterio-sclerotic brain affection. The poor prognosis in melancholia may be explained in the following manner: The apprehensive irritability reacts on the heart which in the involution period is not very strong; the severe psychosis exerts an untoward effect on the whole system; the fact that this type of manic

depressive insanity occurs in old age and at this time the important vital organs are undergoing arterio-sclerotic changes. "I have no doubt," asserts Dreyfus, "that by a careful observation and analysis one can always find in the disease picture of melancholia or during its course definite manic features."

To sum up briefly: *Kraepelin, in establishing the group of involution melancholia, contended that its development, course, and prognosis were totally different from those of manic depressive insanity. Moreover, it lacked true retardation and manic symptoms. Dreyfus, on the other hand, emphasizes the fact that Kraepelin's involution melancholia is not an independent entity but a mixed form of manic depressive insanity. The depression is in the foreground and manic features here and there make their appearance, and it has relatively a favorable outcome.*

While it must be cheerfully admitted that Dreyfus's book, Die Melancholie, is an invaluable contribution to psychiatry, yet his results cannot be accepted as final. He lays great stress on symptoms, completely disregards the individual constitutional make up, and pays no heed to the development of the psychosis. From our experience with the insane we learn that from a nosological point of view a symptom *per se* has no relative significance. The construction of a disease picture on a collection of isolated symptoms without a basic *foundation* or interpretation of *their mechanism* is totally unscientific. A book on biology may contain philosophical problems, psychological discourses, and sociological discussions, however the book fundamentally is of a biologic groundwork and is classified accordingly. Likewise a case of dementia praecox may exhibit hysterogenic stigmata and manic features, yet the constitutional disorder is essentially of a deteriorating type peculiar to a dementia praecox reaction. In this country Professor Adolf Meyer's profound teachings are directed towards the recognization of mental reaction types, and indeed this is an important advance in psycho-pathology.

Dreyfus has not solved the problem of melancholia, but only opened avenues for further research, and indeed what other branch of medicine than psychiatry offers such a fertile soil for original investigations! "Licht, mehr Licht."

Morris J. Karpas

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BOOKS RECEIVED

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